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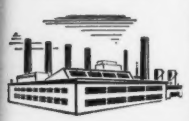
MANUFACTURING DEPARTMENT 	High and rapid solubility.	Compatible in multivitamin formulae.	Economical, less time and labor in compounding.	No solubilizer needed.	Make clear solutions of 30 mg. or higher per ml. of water.	No special techniques required. Relieve technical department problems.
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Drug and Cosmetic Industry

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"The boss just doesn't realize that some of the greatest chemical discoveries have been made during coffee breaks."

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Keeping Posted

FTC Curbs Purchasers

The Federal Trade Commission, in a decision which it admits goes beyond the specific language of the law, held that it is an automatic violation of the FTC Act for a purchaser knowingly to induce a seller to grant discriminatory advertising allowances.

The violation is automatic—a "per se" offense—in the sense that injury to competition need not be proved, the commission's decision implies.

The commission split 4-1 on the case and the majority ruling drew a vehement dissent from Commissioner Edward T. Tait.

Price discrimination is a subject ordinarily covered by the Robinson-Patman Act, but in this case the commission applied the R-P Act's basic principle of non-discrimination and used another law—the more general Sec. 5 of the FTC Act—to make something illegal which is not specifically banned by Robinson-Patman.

Although the specific suit involves only discriminatory advertising allowances, the FTC majority's reasoning in the case—if upheld in the courts—could be equally well applied to penalize the purchaser for inducing any form of promotional allowances, services or facilities which a seller grants to some customers but not all.

The commission's majority adopted an initial decision made by Hearing Examiner John Lewis a year ago, in which he found that Grand Union had induced or received from a number of its suppliers advertising payments and other benefits which it knew, or should have known, were not being made available to all other competitors on proportionally equal terms, as required by the R-P Act.

Product Liability

In a fully documented story in the "Wall Street Journal," Robert Keatley discusses the implications of "implied warranty" and the liability of manufacturers for the products they sell.

Lawyers report that makers of such varied products as canned salmon, hair lotions and grinding wheels are finding themselves hit more and more frequently with lawsuits from customers who claim the products damaged them or their possessions. And the lawyers say that judgments awarding money to aggrieved consumers are also increasing in number.

One leading liability lawyer figures the total is around 10,000 product cases a year and climbing. And he estimates that four times as many are settled or dropped before court proceedings begin.

After reviewing recent product liability developments, the New Jersey Supreme Court stated: "Primarily, they reveal a trend and design in legislative and judicial thinking toward providing protection for the buyer."

Though not accepted everywhere, legal changes being adopted include:

The injured person in a growing number of cases now can sue not only the retailer from whom he bought the product but anyone else involved in making and marketing it. And the person suing doesn't have to be the purchaser, but can be anyone who could reasonably have been expected to use it, such as a member of the family.

Negligence is often not a factor these days. Courts may simply find that injury resulted from normal use of a product and decide this is reason enough to hold a company liable. Previously, plaintiffs usually had to prove negligence on the part of maker and seller before collecting.

One possible result: damage awards stemming from liability for products may force manufacturers to adopt more stringent testing methods before sending new products to market. In addition, a rash of suits may cause companies to tone down advertising claims because courts may hold such statements are guarantees of product quality.

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More serious, company men claim, is the possibility that fear of liability suits will keep needed new products off the market for indefinite periods. They recall that Cutter Laboratories was held liable for damages resulting from use of polio vaccine it marketed five years ago, though courts agree the company took every known precaution before putting the product on the market.

Insurance rates for companies may also be affected. One insurance expert says manufacturers' liability coverage will become more costly—if it can be obtained at all—for those companies hit hard by such cases.

Directly concerned with this increased litigation is a 7,000-member group of lawyers called the National Association of Claimants Counsel of America. These trial lawyers have set up a Products Liability Exchange, which puts N.A.C.C.A. members in touch with others who have handled cases involving—at the present time—691 different items. Says New York attorney Alfred Julien, founder of the exchange and past president of N.A.C.C.A.: "This enables the lawyer in Oshkosh to find out as much about previous cases involving a product as the company's lawyers."

A case in which an N.A.C.C.A. member had a client who suffered unpleasant side effects from a tranquilizer provides an example of the way the exchange helps the claimant's attorney. By using the Products Liability Exchange, the lawyer in this case contacted other attorneys with cases involving the same product. In this way, he could anticipate the manufacturer's probable defense before entering court and had the benefit of other medical testimony and court holdings to bolster his own attack.

Says Thomas Lambert, onetime law professor and now editor of N.A.C.C.A.'s law journal: "We're pressing for recoveries wherever there is an injury resulting from a normal, expected use of a product. This puts the whiplash to manufacturers to take measures to prevent such injuries."

Lawyers offer evidence that such efforts are growing in number and meeting with increasing success. "I have six drawers full of cards describing recent products cases," says Warren Freedman, a New Rochelle, N.Y., attorney who specializes in handling drugs and cosmetics cases for manufacturers.

Mr. Freedman estimates court decisions in about 20 states have relaxed the rules about product cases in recent years, making suits easier to bring to court and increasing recoveries. Such relaxation, he complains, can "foster rash litigation, for every consumer who has been even slightly discomforted by a product" may bring action against manufacturers.

Drug companies, uneasy about publicity which can result from product suits, seem concerned. The American College of Physicians testified on their behalf at the Cutter trial that "liability should certainly result from a negligently manufactured product (but not) . . . because of the user's own peculiar susceptibility or because of insufficient knowledge at the time. To create such an absolute liability would be to saddle the world of medical science with an unfair burden."

Advertising copy may have to be altered because of product suits, one attorney says. He cites cases involving a well-known deodorant. A few customers contracted serious skin irritations by using the product. Company ads say only that it will stop perspiration and don't warn that a few people are allergic to its contents, he explains, so the manufacturer has to pay.

Hair Cream Litigation

The United States Court of Appeals for the Second Circuit has decided in favor of *Harold F. Ritchie, Inc.*, Clifton, N. J., manufacturers of Brylcreem men's hair dressing, in its suit charging that *Chesebrough-Pond's, Inc.*, manufacturers of Valcream, deliberately and consciously imitated Brylcreem's name and packaging. This affirmative decision of trademark infringement reverses an earlier decision of the District Court.

As a result of the decision, Chesebrough-Pond's has suspended the manufacture of its product under the name Valcream. It has agreed to suspend Valcream sales to the trade in the U. S. effective September 2, 1960, and to pay court costs and the attorney's fees of Harold F. Ritchie, Inc. Chesebrough-Pond's has also agreed to discontinue all sales under the name Valcream in all foreign countries where the product is sold under that name.

The Court of Appeals found that Chesebrough Pond's failed in its duty as a "second comer" on the market to select a distinctive name and package for Valcream. In addition, the court also found that in a significant number of instances, there has been actual confusion between the two products on the part of the buying public.

Harold F. Ritchie, Inc. is a wholly owned subsidiary of The Beecham Group Ltd. of Great Britain. Brylcreem is the largest selling men's hairdressing in 16 world markets, including the United States.

The Court of Appeals also held that evidence establishing conscious imitation by Chesebrough-Pond's included such items as Ritchie's demonstrations that the two products are identical in size and shape of tubes and cartons, the prices identical, the colors similar, the tube opening identical in size, and the labeling on the tubes and packages substantially the same.

Live-Virus Polio Vaccine Approved

Live-virus poliomyelites vaccine has been approved as suitable for use in the United States.

The announcement, ending a long controversy, was made by Dr. Leroy E. Burney, Surgeon General of the Public Health Service.

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which the live-virus vaccine will be licensed for commercial use in this country. His timetable calls for this to take place next spring. He predicted large supplies by the fall of 1961.

The live-virus vaccine, given by mouth, has already been used to immunize millions of persons in the Soviet Union, South America and other parts of the world. It is a virus so weakened as not to cause the disease, but still alive enough to produce antibodies. Dr. Burney predicted that the live vaccine would not replace the Salk Variety, but that each would complement the other. For instance, live-virus vaccine might be used as "booster" shot for the Salk vaccine.

The rules laid down permit initial commercial production of only the Sabin types of vaccine—Types I, II and III, developed by Dr. Albert B. Sabin of Cincinnati to protect against the three polio strains.

Ruled out were two other types of live-virus polio vaccines—that developed by Dr. H. R. Cox at the Lederle Laboratories in Pearl River, N. Y., and that developed by Dr. Hilary Koprowski, at the Wistar Institute in Philadelpia.

Since the Sabin strains were developed with funds furnished by the National Foundation, they will be available to all the drug manufacturers that wish to produce live polio vaccine.

Dr. Burney said he thought that three or four doses of live virus would be required.

Drug companies already in experimental production of the Sabin vaccine include Wyeth Laboratories of Philadelphia, Pitman-Moore of Indianapolis, and Chas. Pfizer & Co. of Brooklyn.

The American Cyanamid Company, under which the Lederle Laboratories operate, issued a statement that Lederle would start manufacture of the approved strains as soon as all the Public Health Service requirements were met.

Other drug companies sending experts to the live virus conference were the Eli Lilly Company of Indianapolis; Parke, Davis of Detroit, and Merck Sharp & Dohme of Rahway, N. J. Attending as observers were scientists from Connaught Laboratories at the University of Toronto in Canada, where live vaccine is now being produced, and from Chas. Pfizer Laboratories of Kent, England.

Dr. Roderick Murray, chairman of that committee and head of the Division of Biologics Standards that will license the vaccine, stressed these points:

To minimize the possible danger from a wild virus that might develop after repeated trips through the human intestinal tract, use of live virus vaccine should be on a community-wide rather than individual basis.

The claim for immunization through a single dose of the live virus has not been borne out by recent experience. Repeated doses must be given at intervals, whether single strain or polyvalent vaccine is used.

Laboratories must be isolated and other special precautions instituted, including tests of both the persons who make the vaccine and the monkeys used in testing it.

The product must be kept under 30 degree centigrade in manufacture, and under refrigeration pending use.

The production regulations will be published in The Federal Register about Nov. 1 and again in late November.

The new Sabin oral vaccine for the prevention of poliomyelitis is going to cost considerably more than some early reports have indicated, according to officials at Wyeth Laboratories, who state that the Sabin vaccine will present one of the most difficult production problems ever experienced in the biological field.

"Maybe the process will be cheap someday," said the Wyeth spokesman, "but it certainly is not going to be cheap initially. Some reports have been published that the Sabin vaccine may cost as little as one-tenth that of the Salk vaccine. Our guess is that, initially, it may cost about the same as Salk vaccine."

Lederle-Kefauver

The price of antibiotics manufactured by American Cyanamid Company's Lederle Laboratories Division dropped 66 per cent between 1948 and 1958 while the price of milk, shoes and gasoline rose between 20 per cent and 26 per cent, President W. G. Malcolm told the Kefauver subcommittee.

Lederle has lowered antibiotic prices in spite of sharply rising costs for materials and services, rapid product obsolescence, and the expenditure of over $100 million for research and development during this period.

Dr. Malcolm was the lead-off witness on the opening day of the antibiotics phase of the drug industry investigation being conducted by the Senate Subcommittee on Antitrust and Monopoly under the chairmanship of Senator Estes Kefauver.

Lederle has spent 13 years and close to $12 and one-half million in its pioneering effort to find an effective live virus oral polio vaccine, but today has no product on the market.

In view of the recent Public Health Service approval of a competing vaccine, Lederle is preparing to manufacture the approved strain, he explained, but will continue work on its own Lederle-Cox vaccine.

The company has also worked for 20 years and invested an estimated $7 million in the search for drugs effective against cancer, but has no commercial product of significant sales volume to show for it.

The high rate of product obsolescence in the drug industry, he told the committee members, is exemplified by the fact that Lederle expects nearly two-thirds of its sales five years from now to come from products not on the market in 1959.

In 1948, after four years of work, Lederle developed and marketed Aureomycin chlortetracycline. Lederle's lead in the field was challenged only a few

months later when Parke Davis introduced Chloromycetin chloramphenicol, and early in 1950 when Pfizer brought out a third competitive drug, Terramycin oxytetracycline.

Again in 1953 when Lederle developed and marketed Achromycin tetracycline, independent research by Pfizer and Bristol enabled them to come on the market with the drug at almost the same time. Within a year, Squibb and Upjohn were also competing in the tetracycline market.

As a result of this competition, Dr. Malcolm said, Aureomycin's share of the antibiotic market dropped from 100 per cent in 1948 to 1.6 per cent in 1958. Achromycin's share fell off from 40.7 per cent to 37 per cent between 1956 and 1958 and gives indications of dropping further since the introduction of Declomycin, the company's latest achievement in the antibiotic field. Lederle spent over $2 and one-half million over a 6 year period developing and testing Declomycin.

Among the other factors that contribute to the high cost of Lederle's drug operations, he said, are the company's stringent quality control policy, and its program to inform doctors and pharmacists of new drug developments.

To inform doctors of its new drug developments Lederle spends an average of $3.51 a month for each of the 200,000 physicians in the country. Of this total, $1.33 goes for samples and $1.06 is spent for advertising in medical journals. The company spends an average of only 52c per doctor each month for direct mail advertising.

In the educational field, Dr. Malcolm pointed out, since 1955 Lederle has awarded grants of nearly $2 million a year to individuals, research institutions, medical schools, universities and teaching hospitals in support of medical studies. A recent survey revealed that among 99 companies studied, Cyanamid contributed the highest share of income to education in 1957 and 1958.

Contributions to Project Hope

The purpose of Project Hope is the sending of a fully equipped hospital ship from the people of the United States to professional people in underdeveloped countries to bring modern medical knowledge, skills and techniques to those concerned with the health of the people in these countries. The pharmaceutical industry has been asked to contribute materials and money to defray the $3.5 million cost of the first year's operation, and it is responding. Among the contributors have been the American Pharmaceutical Company, donating drugs and pharmaceuticals valued in excess of $4,000; Merck & Co., Inc., contributing more than 60 different products valued at $56,000; Chas. Pfizer & Co., Inc. shipping 288 cartons of antibiotics, vitamins and other medicinals with a value of more than $50,000; and E. R. Squibb & Sons shipping more than 40 different pharmaceutical products worth nearly $75,000. Totals for industry contributions are not yet available.

Mergers, Acquisitions, Expansions

A proposal to merge *Allied Laboratories, Inc.* and *The Dow Chemical Company* was approved August 30 by the directors of the two companies.

If the merger proposal is approved by the Allied stockholders at a meeting called for Wednesday, November 30, in Wilmington, Delaware, Allied would continue to operate under its present officers as a division of Dow. Both Dow and Allied officials emphasized that they plan no changes in personnel or in operating plans of Allied Laboratories, including Pitman-Moore.

Under the proposal, Dow common stock would be issued on the basis of two-thirds of a share of Dow stock for each share of Allied stock. Assets and business of Allied would be transferred to Dow and the latter would assume all Allied liabilities, according to the joint announcement.

An agreement for the merger of the *R. J. Strasenburgh Company*, Rochester, N. Y., into *Wallace & Tiernan, Inc.* Belleville, N. J., has been approved by the boards of both companies, but is subject to the ratification of stockholders of each.

Wallace & Tiernan, listed on the New York Stock Exchange, makes pharmaceuticals, chemicals and instruments and mechanical equipment. Last year, net income was $4,300,000, on sales of $51,800,000. Strasenburgh is a privately held manufacturer of pharmaceuticals.

Under the terms of the proposed merger, Strasenburgh stockholders would receive 400,000 shares of Wallace & Tiernan stock.

Upon completion of the merger, Edwin G. Strasenburgh and Robert J. Strasenburgh, II, will become directors of Wallace & Tiernan. Robert J. Strasenburgh, II, will become president of the Strasenburgh division and corporate vice-president in charge of W & T's combined pharmaceutical operations.

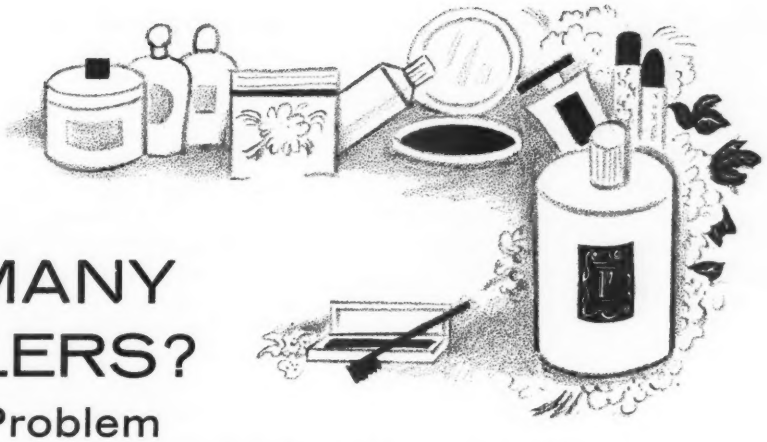
Elwood A. Garner, Strasenburgh vice-president-marketing, will become executive vice-president of the Strasenburgh division. E. Griffin Strasenburgh, Jr., will become a vice-president of the division.

A tentative agreement to merge was announced by *Minnesota Mining & Manufacturing Co.* and *Warner-Lambert Pharmaceutical Co.*

Minnesota Mining's volume last year was $690 million. Warner-Lambert had 1959 sales of $190 million.

Under the agreement, still subject to approval by directors and shareholders of both companies, one share of Warner-Lambert common stock will be exchanged for one-half share of three M common plus one share of a special Class A voting still to be authorized. The Class A voting stock may be converted into three-fifths of a share of Three M common. The

(*Continued on page 383*)



HOW MANY RETAILERS?

A Critical Problem for Perfume and Cosmetic Manufacturers

BY FRAZER V. SINCLAIR

One of the critical problems of management in most cosmetic and perfume companies is the need to determine how many retailers should sell their products. What kind of retailers and where they are located are important considerations, but the really tough problem is generally the decision to limit or expand the number of stores.

A whole galaxy of factors must enter into a decision of this kind. Among the most important are: (1) the character of the product, for instance, utilitarian (shampoo) or fashion, or prestige (perfume); (2) the price the consumer pays; (3) the need for sales help and demonstration at the point of sale; (4) the age of the company or the degree of consumer recognition of the product; (5) the kind of retail cooperation wanted by the company; (6) the need or desire to work closely with one class or limited group of retailers (fashion); and (7) the desire to identify the company and the product with certain retailers for prestige or other reasons—a deliberate planning for a company or product image based on a well-defined pattern of distribution.

Each and all of these factors, and undoubtedly others, have influenced a wide variety of distribution patterns in the cosmetic industry.

The cosmetic industry is fortunate in its wide and varied retail distribution. In every community—no matter how small, isolated, or backward—there is an easily available retailer. Also, there are retailers for every social and economic group. No matter what price range and no matter what environmental or social appeal, from the barest necessities or utilities to the most exotic fashion and prestige items, there are suitable retailers with suitable retail environments available.

More than 100,000 retailers now have a cosmetic department of some sort. There are 1,000 or more department stores with a cosmetic department, and a little more than 50,000 independent drugstores feature at least the every-day toilet preparations and some general cosmetics, as do the nearly 5,000 chain drugstores.

Add to this basic, traditional distribution for cosmetic products the 10,000 to 15,000 variety stores with cosmetic departments, and the up to 20,000 supermarkets and grocery stores, plus a sprinkling of general stores, specialty stores, even a few jewelry stores, and the breadth and complexity of cosmetic distribution becomes clear.

Even beyond this mixture of unrelated and, in many cases, incompatible groups of retailers there are a number of assorted beauty parlors, barber shops and men's haberdashery stores trying their strength in retailing some cosmetics.

To a certain degree, the different classes of retailers have given rise to groups of cosmetic manufacturers that are virtually noncompetitive with each other.

In variety stores, certain cosmetic manufacturers are represented that can scarcely be found in any other kind of retail outlet. This can be said also for the department store. It may very well happen that the growing position of the supermarket in cosmetic distribution will open opportunities for certain cosmetic brands to identify their names with this type of distribution prominently and even exclusively.

The broadest division of the cosmetic industry's distribution is, of course, into mass and class. These divisions are very fluid, constantly changing as companies seek a level of greatest profit and sales potential or, as is too often the fate in cosmetic marketing, fade into oblivion.

Distribution begins to take on the characteristic of mass as it passes beyond the several thousand de-

partment stores, independent drugstores and selected chain stores which prominently feature a well-kept and well-stocked cosmetic department, employ trained sales help, and make some effort at creative selling. As distribution reaches up to 20,000 drugstores and the drug chains in addition to department stores, it becomes basically a mass distribution, but may, as is the case with several important cosmetic companies, still retain some of the advantages and characteristics of a class or selected distribution.

Beyond this number of 20,000 stores lies the open field of general mass distribution basically suitable for utility or functional products sold at a moderate price and supported by heavy national advertising.

The company case-history method provides an ex-

cellent way of examining the different patterns of distribution now enforced in the cosmetic industry, along with some of the reasons for adopting and retaining these patterns.

For this purpose, several eminently successful companies have been studied. These companies were selected on the basis of reasonably long established success, distinctive, well-planned distribution, and, of course, a willingness to provide information.

Company I. This is a perfume company established in the United States about eight years ago, well-known abroad, importing fully packaged perfumes but making and packaging colognes and aerosols here. Volume is slighly over $800,000 annually. The perfume is priced at $22.00 an ounce, and other products proportionately.

The present distribution of this company is in a little over 800 stores and, until recently, exclusively in department stores. In the last two years, about 50 drugstores have been added. These are carefully selected stores, primarily in the leading hotels and major cities.

This distribution is a carefully controlled franchise. Stores have been added as volume expanded and as ability to cooperate with new stores in sales programs developed. Other reasons for this strict franchise control are: (1) a desire to be associated in the public mind exclusively with certain fashion, prestige retailers; (2) the desire to be associated only with stores that have a creative ability to sell a product of this kind; (3) the desire to work intimately with stores in promotion of sales and to receive the full cooperation of the stores; and (4) a conscious feeling that too much dilution of sales in a community would injure the company's position with cooperative retailers.

Company II. As a company succeeds, as its sales volume and reputation grows, so does the conception of distribution change and grow. As a good illustration, consider Company II.

This also is a perfume company, French in ownership with a worldwide reputation, established in the United States about 25 years ago. The perfume sells at $24.00 an ounce; colognes and other products are priced proportionately. The products of this company are made in the United States and volume is very near $2,500,000 annually.

This company now has a moderately expanding distribution of 3,200 stores. This consists of about 900 department stores, the rest drugstores and primarily independent druggists.

The number of stores is limited for reasons much the same as those given by Company I, but on a larger pattern because the sales volume, the long-established brand recognition, and the expenditure of a substantially larger advertising appropriation—around $150,000, has justified wider distribution.

Distribution for this company is increasing moderately. The decision to expand is based on a recent market survey that showed the number of potential consumers for the products of this company to have more than doubled in the last ten years.

Nevertheless, this company still believes that the extent of its distribution must be governed by such factors as the ability of a store to sell fragrances, the compatibility of store environment for perfume, and

the inclination of franchise stores to give preferred sales help. This company believes that for a product such as theirs, easy, convenient product availability is still available for practically every interested consumer reached by the firm's advertising.

Two other perfume companies are now exploring what might be called the outer limits of selected distribution for fragrances. These companies have recently become heavy advertisers on TV, as well as in print. They believe in the so-called class-mass market, that is, the emergence of great numbers of low-income groups into a new social and economic status.

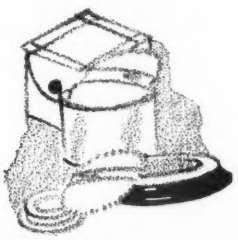
It will be extremely interesting to watch the experiences of these two perfume companies in pressing for broader distribution than has been successfully maintained in previous trade experience.

Company III. This is a cosmetic company. Its products are face treatments and makeup. Estab-

lished a little over 25 years ago, it is one of the great successes in this industry in sales volume, in profits, and in a solid prestige position. Sales volume is in the neighborhood of $10,000,000. The products are beautifully packaged, highly styled, of excellent quality, and are priced accordingly.

This company has less than 1,000 retail accounts, all of them department stores.

The reason for this limited, rigidly selected pattern of distribution is, first of all, an insistence on a full basis of retail cooperation with the company's unique plan for selling, a retail ability to perform in selling, careful control of retail dilution, and an insistence on a retail environment of fashion, prestige, and cosmetic success.



While this company is today a substantial advertiser, it must be said that its leading reputation with the public for creative selling and quality has been accomplished through and by means of the department stores. This company provides a perfect example of a fine reputation achieved through association with famous retail names rather than through extensive consumer advertising.

This company is in a branch of the cosmetic industry crowded with competition and identified with many patterns of distribution. In this group there are excellent examples of expanding distribution as well as of the limits set on distribution by the price of the product, the need for association with certain kinds of stores (fashion and prestige), and, above all, the need for stores that have the creative ability to sell and can provide the space and environment for demonstration.

Only rarely in this branch of the cosmetic industry does distribution exceed between 4,000 and 5,000 stores. When it does happen, it is the result of heavily advertised specialties.

Company IV. This is an American company established over 20 years ago. Its products are highly diversified, but they have been primarily in bath accessories, men's toiletries, and cologne fragrances. The prices are moderate, heavily in the $1.00 to $3.00 classification. The volume is over $30,000,000 annually.

This company was first established as a department store line. Instant popular approval gave impetus to an expansion that has continued to this day. Present distribution is somewhat more than 20,000 stores, confined mostly, as of today, to department stores, drugstores, and drug chains.

This distribution has had a slow, steady growth. Dilution of retail sales has been avoided by limiting selected retailers to a franchise obligation to sell a minimum of $300 a year. This expansion has also been supported by heavy national advertising consistently increasing annually, and by well-planned promotions.

This company has resisted more successfully than most others in this general classification the trend whereby distribution weakens from the top as distribution expands. Although not now rated as a department store line, the products of this company are still well-represented there.

This company has, so far, carefully refrained from any general identification with variety stores or supermarkets.

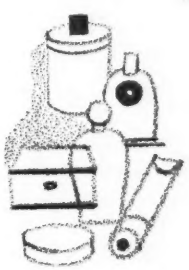
As of now, efforts for expansion have been directed to their present retailers and to the department store with new products.

Company V. This is one of the oldest of the American cosmetic companies. Its products are basically creams and makeup, which have been advertised with glamour, but sold as a staple. The unit prices of products at retail are, largely, under $1.00. Total volume exceeds $50,000,000.

This company has now reached a distribution that must be near the maximum for any one cosmetic company. It has a strong position in every branch of cosmetic distribution except the department store, where it is very weak.

Variety stores have been an important outlet and now food stores are being given special attention.

As evidence of the almost universal use of cos-



metics in America today, the products of this company are sold in a retail environment of purely functional necessities or utilities, for instance, tooth paste or shaving cream. Almost entirely, the burden and the pressure in selling to the consumer lies with the manufacturer and his extensive advertising.

Because of a long-established name, large sales volume, and very heavy advertising, this company is scarcely interested in retail dilution, store prestige, or the environment of a cosmetic department, or even a store's ability to sell. The company is primarily interested in having its products available on sale in every conceivable outlet displaying toiletries.

These show briefly the bare framework of cosmetic

(*Continued on page 411*)

AGING OF SKIN

BY BERNARD IDSON, Ph.D.
TECHNICAL DIRECTOR, DOME CHEMICALS INC.

The skin, obvious organ that it is, bears primary witness to the onslaught of age. Not all individuals age alike. Our skin may appear older at a relatively younger age as compared to another more advanced in years. Similarly, graying hair may top a youthful looking body. This visibility of the skin, coupled with its ready accessibility, renders it available for study. Yet, only recently have systematic studies begun to shape theories of aging mechanisms. Biophysical and biochemical investigations of collagen, the chief protein of the dermis, elastin, and the mucopolysaccharides of the connective tissue are beginning to cast intelligent light on the progressive tissue changes of aging.

From birth, the skin is exposed to outward forces that exert great effect. Long exposure to wind and sun yield the ruddy, leathery skin typical of the farmer or sailor. Blond, sandy, red-haired, and freckled skins seem most affected. Similar tolls result from heat, dust, light, humidity, and even from cleansing and cosmetic preparations. Sex gland disturbances with consequent hormonal imbalance often can be connected with "selective oldness." In other instances, diet changes, digestive inefficiency, infection, debilitating disease, and particularly emotional disturbances take their toll. Vulnerable heredity may manifest itself more dramatically in a disturbance such as dry pigmentation (xeroderma pigmentosum), or, less vividly but just as definitely, in slow aging or prematurely aging whole families.

The signs of aging skin are rather slight and nonspecific at earlier stages and only assume definite characteristics with advancing years. The skin is thin and easily traumatized at birth. It is covered by primary hairs, called lanugo, which are lost after a few weeks, and by a cheesy coating, called vernix caseosa, which is a mixture of sloughed epidermal cells and the secretion of sebaceous glands. Both sweat and sebaceous glands are present in the fetal period, but they have relatively little function in the fetus and in the first few weeks after birth. Both types of glands undergo considerable development and growth during adolescence.

The increase in subcutaneous tissue and its contained fat occurs at unequal rates. Thus, the amount of such tissue cannot be regarded as a criterion of nutritional status at all stages. A spurt in the accumulation of subcutaneous fat occurs during the last third of the prenatal period and during the first nine months after birth. During the second year, the amount of fat begins to decrease. By five years, the thickness of the subcutaneous tissue is about half that at one year. The amount of fat increases again early in adolescence, especially in girls, in whom localized accumulations appear around the hips and in the breasts. About the time of puberty, the fine, thin skin of childhood, particularly about the face and head, appears to the naked eye to become coarser

BLACK STAR PHOTO

and more greasy. There is a hypertrophy of the pilosebaceous follicle, with enlargement of the sebaceous gland, and a distinct increase in its activity resulting in a much greater production of sebaceous secretion.

The first grossly visible changes in the skin consist of folds and wrinkles. This appearance of folds and lines of the face and neck are the result of repeated contractions of the muscles responsible, not only for the different motions of the head and neck, but also for the various facial expressions. The intrinsic facial muscles, in large measure, insert into the dermis so that, during the period of contraction, there is a direct pull on the attached skin which becomes redundant and folded on itself inasmuch as there is no buffer of intervening subcutaneous fat as there is, for example, in the back of the neck. The first such facial lines, usually the horizontal creases of the forehead, begin to appear in the late teens and thereafter become deepened and more numerous. They are produced by the action of the occipitofrontalis muscle and, as with many other facial lines, are dependent on habits of expressions such as frequency of frowning and laughter. The nasolabial fold is another area formed early in life, at approximately the same period as the lines of the forehead. The depressor muscles of the lower lip play the prominent role in the production of this fold. Lines radiating from the external angle of the eyes, the "crow's feet" or "laugh" lines with which the orbicularis oculi muscle is concerned, are generally evident in the fourth decade. The less attractive lines about the angles of the mouth and lips begin to appear in the following decade as a rule.

There is much interplay among various facial muscles, some of which are inserted directly into each other or are joined with various areas of the face. The tone of the skin is contributed to by the integrity of the elastic fibers and collagen and by contractility of the arrectores pilorum, the smooth muscular fibers surrounding the hair follicles. Precisely how the elastic fibers exert their control on elasticity is not clear. Surely it is not their numbers; since an increase in the quantity of elastic fibers is associated with loss of elasticity in the senile skin. It appears to be rather a change in the collagen.

Aging skin is characterized by a thinning of the epidermis. This is accompanied by loss of elasticity of the cutis due to degeneration and breakup of elastic fibrils. A decrease in thickness of the skin is partly due to a lowered moisture content as might be expected in view of the decreased vascularity or diminished number and caliber of the capillary blood vessels throughout the skin. Spotty pigmentation, dryness, scaling, smooth glossiness of face and dorsum of the hands, diminished warmth, loss or depigmentation of hair, and an increased incidence of benign and malignant epidermal neoplasms are more immutable signs of aged skin. These changes appear concomitantly with extracutaneous changes, such as atro-

(Continued on page 400)

COURTESY STENDHAL

BASES FOR PERMANENT HAIR DYES

BY MARVIN K. COOK CONSULTING CHEMIST

The most effective and successful hair dye preparations are the so-called permanent or oxidation dyes, which are based upon aromatic diamines, amino phenols, and related intermediates. These products are the only rapid hair colorings that are long lasting and cover a complete series of shades approximating those found in nature. The ever-growing volume of sales each year, in the beauty shop and in the retail market for home application, demonstrates the popularity of permanent hair dyes.

Permanent hair dye products have not reached the ultimate of technical excellence, but they do represent very definite improvements over preparations manufactured a decade or so ago. These advances include more consistent uniformity and fidelity of color shades, ability to hide grey hair more adequately, greater ease of application, and diminished incidence of hair dye dermatitis (despite increased use).

The oxidation dyestuffs regularly used belong to the group of aromatic ortho and para diamines, aminophenols and their derivatives. It is generally believed that p-phenylene diamine is oxidized to quinone-diamine and three moles of the latter condense to form an indamine (Bandrowski's base). The base is in turn oxidized to an azine dye, which combines with the keratin of the hair to form an azine-keratin complex.

Ordinarily, keratin is resistant to penetration by solutions. In the presence of an alkaline oxidizing agent, it is believed that the keratin disulfide cross links open and form anionic groups at the point of S-S rupture. A loosening of the gel occurs with further swelling and the formation of additional anionic groups. In this manner, oxidation dyes can penetrate the hair shaft. Some swelling seems to be necessary to allow for absorption of the dye within the hair shaft, but the degree of reversible swelling is unfortunately limited and hair damage may result. The anionic groups are quite alkali-sensitive and their formation would constitute a nonreversible reaction, under conditions of alkaline oxidation. With an alkaline reducing agent, as in cold permanent waving, the action is reversible in that the treated hair usually reverts to its original condition.

To avoid excessive swelling and alkali damage, it is customary to employ agents that help protect the hair and at the same time assist and accelerate dye penetration. These agents include various conditioners, soaps, and wetting compounds capable of functioning at a rather high *p*H level. However, there are some who feel that these agents actually reduce the affinity between the dye and the keratin. The newer shampoo tints are fast-acting combination bleach-dyes that usually require no pre-softening and, with one treatment, completely cover gray hair, seemingly without significant damage.

The dye base or dye vehicle is obviously of vital importance in the preparation of the most popular permanent dye products such as "shampoo tints," "color shampoos," "cream tints," and "hair dyes."

COURTESY CLAIROL

Fundamentally, all these modern products are either clear or cream types, the former being the older of the two. In both instances, however, the packaged products are usually transparent solutions.

The modern clear liquid or cream dye base functions as a solubilizer of the dye mixtures and contains sufficient ammonium hydroxide to provide the proper *p*H level when combined with an equal proportion of six-volume hydrogen peroxide. Built into this base are soaps, synthetic detergents, dye antioxidants, sequestering agents, and hair conditioners. In addition, thickening agents are universally incorporated.

The addition of hydrogen peroxide to the dye base results in an almost immediate increase in viscosity, a highly desirable characteristic. Cream preparations also increase in viscosity, but an opaque, almost gel-like mass is formed which becomes appreciably thicker with additional stirring. Moreover, the dye action is significantly improved with cream dye vehicles.

Upon completion of the dyeing process, the base is then supposed to serve as a shampoo. However, it is always necessary to supplement the process by utilizing a regular shampoo, to remove completely all traces of the unreacted dye and alkali from the hair and scalp. Stains on the skin should be easy to remove during the course of shampooing and rinsing.

The modern dye base is composed of a painstakingly balanced, frequently complex mixture, each component having a specific function in the process. The ingredients are not only of great importance individually, but also in combination, where a sensitive interrelationship exists. Slight changes in the percentages of certain ingredients may alter important properties such as viscosity, dye tone, and ease of application.

It is important to emphasize that on dilution of the dye preparation with an equal volume of hydrogen peroxide, also known as the developer, the viscosity must increase in order to minimize dripping on the neck or face. At the same time, the flowability of the undiluted dye base should still allow easy drainage from the bottle, without excessive wall cling. A further consideration is the possible change during application in the viscosity of the dye-peroxide mixture.

As in practically all phases of hair dye technology, the thickening agents utilized remain carefully guarded trade secrets. The so-called clear dye base formulations do not thicken as much as do cream types. Thickening has been achieved by the use of soaps such as ammonium oleate, formed *in situ* with the addition of ammonium hydroxide to the base containing oleic acid.

A general formula would be:

HAIR DYE BASE
Clear Type

Propylene glycol	10.0%
Oleic acid	35.0
Polyoxyethylene sorbitan monooleate	10.0
Isopropyl alcohol	5.0
Water	29.0
Ammonia, 26° Be	11.0
	100.0%

Greater thickening action may be obtained by incorporating cetyl alcohol, which is first dissolved in isopropyl alcohol, as shown in the basic formulation on page 407.

The cream dye vehicles are far more difficult to formulate. One approach has been the utilization of a low water system and water-insoluble opacifiers such

(*Continued on page 407*)

SIDE EFFECTS OF DRUGS

BY ERWIN DI CYAN, Ph.D. DIRECTOR, DI CYAN & BROWN, CONSULTING CHEMISTS

An extra or even an unpleasant effect that a drug may have is not necessarily a side effect. A side effect is a toxic manifestation of a drug. Some ancillary effects that drugs show are extensions of their normal physiological effects. This is not a matter of merely juggling words or pushing decimal points in the interests of pedantry. Rather, it is a matter of affixing a label that does connote the notion that one intends to convey. That is the objective of this discussion.

It is interesting that the term "side effect" is not to be found in *Dorland's Illustrated Medical Dictionary* (23rd Edition, 1957), nor in *Stedman's Medical Dictionary* (19th Edition, 1957). Nor is the term "extension effect" listed in either of these dictionaries, for, in fact, it is a neologism intended to convey the notion of an extension of the normal effect—far in excess of the degree intended for the purpose for which it is administered.

Side Effect

A side effect is an untoward manifestation exerted by a drug, either through excessive dosage—although it may occur with any dose, or when that manifestation occurs in an organ or system other than that for which it is administered. An example of a side effect is gastric ulcer induced or activated by an adrenal corticosteroid.

True side effects are common and may occur with many drugs. However, absence of clinical symptoms does not mean that no side effects have been caused by a drug. There may be biochemical changes such as a disturbance of enzyme metabolism as, for example, increased transaminase activity, reduction in the blood of TPN or of glucose-6-phosphate dehydrogenase. And these may be prodromal signs of clinical disorders.

One of the side effects of corticosteroids is the appearance of diabetes, psychic disturbances, or gastric ulcer. Oxygen, causing retrolental fibroplasia in the newborn, is an example of toxicity—a specific side effect—when administered to premature infants.

Damage to organs, for instance, to the kidneys and the liver, by mercurials and gold, are side effects of these metals. Damage by streptomycin to the eighth cranial nerve resulting in deafness, or even gastrointestinal disturbances due to iron salts, are other examples of true side effects. Reserpine gives rise to an unusual variety of side effects running from such minor discomforts as stuffed nostrils to grave dangers, such as suicidal impulses.

Damage produced by drugs is frequently reflected in the blood in such common side effects as agranulocytosis, hemolytic anemia, or other blood dyscrasias. Hydantoins, thiouracil, antimalarials, sulfonamides, barbiturates, and aminopyrine, among other substances, have been reported to produce hematologic damage, either by depression of blood formation or by destruction of the blood elements.

Extension Effect

An example of an extension effect is the hemorrhage produced by an anticoagulant. Anticoagulants depress prothrombin levels or thromboplastin formation and thus reduce the coagulability of the blood. An extension of the sought-for effect could not be considered a side effect, but merely an extension of the desirable action, which manifested itself in excess. Another extension effect is the hypoglycemic shock induced by an excess of insulin. Insulin depresses blood sugar, which is the sole reason for its use in diabetes. Reduction of blood sugar to unduly low levels, causing coma, is merely an accentuation of its normal effect, an example of overdosage.

Extension effects are numerous. Tachycardia, palpitation, moist skin or nervousness are the natural results of increased metabolism induced by T_3 (liothyronine). Similarly, if androgenic hormones are used by women, they may cause growth of hair on the face and deepening of the voice, or other signs of virilism, but these are the natural effects of the male hormone, which accentuate male characteristics. (On the other hand, jaundice from methyl testosterone is a toxic side effect.) Similarly, estrogens cause breast growth in males, the natural effect of a female hormone. Tachycardia as an extension effect of the thyroid hormone can be countered by reducing the dose, but it would be a toxic side effect on the part of a sex hormone, which is physiologically unrelated to the thyroid.

Other extension effects are pruritus secondary to

the peripheral vasodilation caused by nicotinic acid. Or, glossitis, a classic sign of a vitamin deficiency, which, paradoxically, may be induced by a large dose of a single vitamin. This is not a toxic symptom of the vitamin, for creating a relative deficiency in another vitamin active in the same system (as nicotinic acid, pyridoxine, and riboflavin do) causes a relative deficiency.

Differentiation

Both side effects and extension effects can be considered in the framework of the same manifestation produced by two different drugs, a diuretic and a corticosteroid. Diuretics increasing urinary output of water as well as electrolytes can precipitate a potassium deficiency which may be manifested in cardiac symptoms. But potassium loss induced by a diuretic is an extension effect, because diuretics in increasing urinary output also cause a loss of all electrolytes, including potassium. However, an increased excretion of potassium caused by a corticosteroid is a side effect, for that property of corticosteroids is not connected with the physiological system for which the corticosteroid is administered—it is given for its effect on a different system or systems.

Genetic Factors

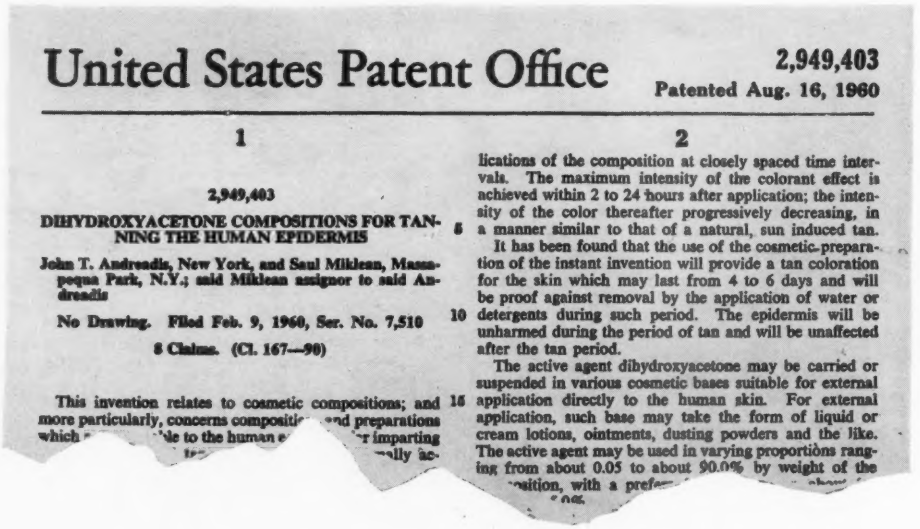
Genetic factors may modify side effects by increasing or decreasing them. These are based on individual biochemical variations, which, in turn, depend on the dominance or recessiveness of certain genes. Thus the anomaly of reaction of a drug in the form of a side effect may be due, not solely to the nature of the drug itself, but to the influence of an anomalous genetic combination in the host which responds violently to the drug. This does not mean that some drugs are entirely nontoxic to a given genetically nonresponsive host; the toxic effect of a drug can overwhelm an otherwise relatively stable enzymatic or other system. But, by and large, genetically determined conditions or variations influence tolerance to alcohol, antimalarials, monoamine oxidase inhibitors, amphetamine, and to a host of similar drugs. Also, excessive responsiveness in the form of a side effect to a given drug suggests the same type of intolerance on the part of the host to chemically related drugs.

Sensitivity and Toxicity

Allergenic reactions—expressed as angioneurotic edema or as a skin rash—may develop from any drug, which suggests the role of a genetically determined intolerance. However, skin rashes are not necessarily allergenic in nature; they may be true side effects of a drug. Among drug reactions, fever may be a true side effect when it is an interference with the heat regulation center in the pituitary. However, an increase of temperature from thyroid intake is an extension effect, for it is an accentuation of the increase in metabolism, which thyroid substance produces.

At times, true synergism serves to increase toxicity. For example, calcium and digitalis both promote

(*Continued on page 423*)



United States Patent Office

2,949,403

Patented Aug. 16, 1960

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2,949,403

DIHYDROXYACETONE COMPOSITIONS FOR TANNING THE HUMAN EPIDERMIS

John T. Andreadis, New York, and Saul Miklean, Massapequa Park, N.Y., said Miklean assignor to said Andreadis

No Drawing. Filed Feb. 9, 1960, Ser. No. 7,510

8 Claims. (Cl. 167—90)

This invention relates to cosmetic compositions; and more particularly, concerns compositi[illegible]nd preparations which [illegible]le to the human e[illegible]r imparting [illegible]ally ac-

2

lications of the composition at closely spaced time intervals. The maximum intensity of the colorant effect is achieved within 2 to 24 hours after application; the intensity of the color thereafter progressively decreasing, in a manner similar to that of a natural, sun induced tan.

It has been found that the use of the cosmetic-preparation of the instant invention will provide a tan coloration for the skin which may last from 4 to 6 days and will be proof against removal by the application of water or detergents during such period. The epidermis will be unharmed during the period of tan and will be unaffected after the tan period.

The active agent dihydroxyacetone may be carried or suspended in various cosmetic bases suitable for external application directly to the human skin. For external application, such base may take the form of liquid or cream lotions, ointments, dusting powders and the like. The active agent may be used in varying proportions ranging from about 0.05 to about 90.0% by weight of the [illegible]sition, with a pref[illegible]

MAN-TAN Is Patented

United States Patent No. 2,949,403, "Dihydroxyacetone Composition for Tanning the Human Epidermis," was issued on August 16, 1960, to John T. Andreadis and Saul Miklean. It had been filed on February 9, 1960, and the application was a continuation in part of the application filed March 9, 1959.

The invention concerns compositions and preparations that are applied to the human skin surface to impart a simulated tan. According to the patent specifications, dihydroxyacetone in a suitable vehicle or base may be applied to the skin to produce a simulated tan. Darkening of the epidermis takes place within two to 24 hours, depending on the individual and the extent of the application. Concentration of the active agent determines the intensity of the developed color after a single application, or repeated applications will lead to the same effect. The tan coloration of the skin may last from four to six days and resists removal by water or detergents. "The epidermis will be unharmed during the period of tan and will be unaffected after the tan period."

The dihydroxyacetone may be carried or suspended in various cosmetic bases, which may be liquid or cream lotions, ointments, or dusting powders, and the active agent may be used in proportions ranging from 0.05 to about 90.0 per cent by weight, the preferred range being from about 0.1 to about 25.0 per cent.

A tanning preparation of this nature is also a vehicle for sunscreening agents, so that simulated tanning of the skin can take place while the skin is being protected from the injurious effects of the sun's rays.

A skin lotion may be prepared by mixing 50 per cent of alcohol, 1 per cent of acetone, 45 per cent of water, and about 4 per cent of dihydroxyacetone, along with a small amount of perfume and vitamin D. A sunscreen preparation can have the same composition, with the addition of about 2 per cent of glyceryl p-aminobenzoate in place of the corresponding amount of water. Other sunscreens may also be used, including homomenthyl salicylate, butyl benzal acetone oxalate, acetanilide, benzyl salicylate, oxynaphthoic acid, dimetheylaminobenzoic acid, phenyl salicylate, and the like.

The acetone in the formula has the effect of reducing the normal tackiness of the lotion. Other appropriate vehicles may also be formulated. An ointment can consist of 10 parts of glyceryl monostearate, 10 parts of cetyl alcohol, 30 parts of spermaceti, 10 parts of Span 20, 10 parts of Tween 20, 12.5 parts of glycerin, and 100 parts of water. To this base, 0.5 per cent dihydroxyacetone is added; a thin coating applied to the skin produced tanning in three hours. A second application of the same ointment one hour after the first application increased the intensity of the final tan.

A dusting powder contained equal parts by weight of talc and chalk along with 1 per cent of dihydroxyacetone and tanned the skin several hours after application. A skin cream can be prepared by melting together 85 parts of stearin, 5 parts of lanolin, and

10 parts of cetyl alcohol; to the melted mass add a mixture of 36 parts of glycerin, 5 parts of triethanolamine, 250 parts of water, and a small amount of perfume, and stir until cold. Mix into the cream 0.2 to 4 per cent of dihydroxyacetone. The claims made to cover the disclosure are the following:

"1. A composition applicable to the human epidermis for imparting a tan thereto, said composition comprising a cosmetic base and dihydroxyacetone distributed through said base, said base comprising an oleaginous material.

"2. A method of tanning the human epidermis comprising applying to the epidermis a composition comprising a cosmetic base and dihydroxyacetone distributed through said base.

"3. A method of tanning the human epidermis comprising applying to the epidermis a composition comprising a liquid cosmetic base and dihydroxyacetone distributed through said base.

"4. A cosmetic composition for imparting a tan effect to the human epidermis, said composition comprising a cosmetic powdered inert base and dihydroxyacetone distributed through said base.

"5. A cosmetic preparation applicable to the human epidermis for imparting a tan effect thereto within 2 to 24 hours after application thereto, said composition comprising by weight about 50 per cent ethyl alcohol, about 45 per cent water, about 4 per cent dihydroxyacetone, and about 1 per cent acetone.

"6. A cosmetic preparation applicable to the human epidermis for imparting a tan effect thereto, said preparation comprising a cosmetic base and a mixture of dihydroxyacetone and a sun screening agent distributed through said base.

"7. A cosmetic preparation applicable to the human epidermis for imparting a tan effect thereto, said preparation comprising a cosmetic base and a mixture of dihydroxyacetone and an anti-tackiness agent comprising acetone distributed through said base.

"8. A composition applicable to the human epidermis for imparting a tan thereto, said composition comprising a cosmetic base, dihydroxyacetone and acetone distributed through said base, said base comprising a mixture of ethyl alcohol and water, and said dihydroxyacetone amounts to from about 0.1 to about 25.0 per cent by weight of said composition."

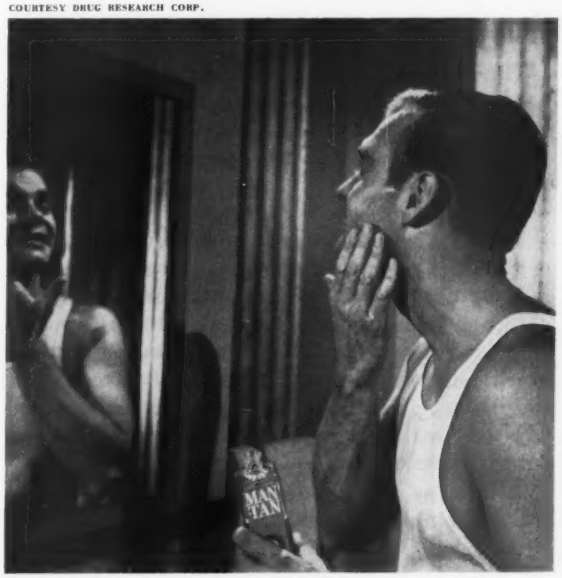
Issue of this patent was immediately followed up by Drug Research Corporation, manufacturer of "Man-Tan," "Positan," "Tan Perfect," and "Miss Mantan," by the initiation of patent suits against other manufacturers of dihydroxyacetone-based preparations. According to the company, suit has been filed in the United States District Court for patent infringement and unfair competition against Coppertone Corporation and Plough, Inc., manufacturers of "Q.T.;" Tan-O-Rama, Inc., manufacturers of "Tan-O-Rama;" Rolley Company, a division of Botany Industries, manufacturers of "Tansation;" Ed Pinaud, Inc. and Nestle-Lemur, Inc., manufacturers of "Rapid-Tan!;" Chemway Corporation, manufacturers of "Tan-O-Tan;" Leonet Corporation, manufacturers of "Magic Tan;" Milly B. Sales Corporation, manufacturers of "Look Tan;" Procapa Products, manufacturers of "Pro Tan;" and against others. Several of these manufacturers are also being sued for unfair competition and trademark infringement.

Companies approached for their reaction indicate that they will contest the suit. According to H. B. Solmson, executive vice-president of Plough, Inc., "We do not feel that there is any valid patent position that prevents us from selling our 'Q.T.' product. As a matter of fact, we feel that we have certain prior inventive rights. We are taking the necessary legal steps to establish our position and are continuing to sell and advertise 'Q.T.' "

According to a statement by Drug Research, the search for a tanning product began in 1952 and culminated, after the creation of hundreds of formulas and the expenditure of about $250,000, in the discovery of the properties of dihydroxyacetone. Exhaustive testing proved both safety and efficacy. Introduction of "Man-Tan" is said to have created a new industry throughout the world with retail sales estimated at from $30 to $70 million. Patents have been issued in Canada and Belgium and a French patent is expected soon. Drug Research expects its sales of tanning products to be at least $12 million in 1960.

At the August meeting of the Scientific Section of the American Pharmaceutical Association in Washington, D. C., three research workers reported the results of their investigations with the new skin-coloring agent. Research for the paper, "Factors Influencing the Tanning Effect of Dihydroxyacetone on the Skin," was done by Nelson Kanas, John Buchter, and Fred J. Bandelin in the laboratories of Strong, Cobb, Arner, Inc. (*Continued on page 411*)

COURTESY DRUG RESEARCH CORP.



THE EBULLIENT COSMETIC INDUSTRY

The cosmetic industry has certainly seen a burst of dynamic energy this year. In spite of the fact that many people thought a billion and a half consumer dollars a year for the industry was an awful lot of money, and in spite of the fact that many people thought 80 to 90 per cent consumer use was very near the saturation point, this is just about when the industry seemed to get into its real stride.

Face creams, which for several years had been in a declining market, have suddenly reversed that trend, due to new so-called therapeutic products. They are now rapidly expanding sales and producing fat profits for many companies.

Products like lipsticks, shampoos, and deodorants, although survey after survey showed that between 80 and 90 per cent of the possible market was already purchasing, have also had expanding sales.

The hair field, which only recently, and suddenly, has become a prominent part of the industry, adding over $80 million in annual sales, has now taken a terrific jump forward with the new hair rinses.

Even eye makeup is contributing new and important dollars to the industry.

Two relatively new developments show the energy of the cosmetic industry. One of these is the expansion by a considerable number of the leading cosmetic companies into a line of so-called therapeutic cosmetics. The other development, equally interesting but in a different way, is the sudden recognition of a so-called prestige or franchise branch of men's toiletries by the big producers of the mass-distributed utility toiletry items.

It looks as if every major company in the cream treatment field will be forced into development of some form of therapeutic cosmetics. The latest company to do so is Helena Rubinstein, with a new medicated product line featuring the new Bio-Clear Medicated Cream—an excellent example of the trend.

Whether these new so-called therapeutic cosmetics can be sustained as a prominent part of the industry will depend entirely on the authenticity and value of the chemical and therapeutical research being done, and on the practical usefulness of such products. In the meantime, we have some profitable records on the books from therapeutic creams over the last several years; there is no doubt that right now this is a big area for expansion in the cosmetic business.

The new development in men's toiletries is a curious one. Men's toiletries in America go back more than 50 years. As a matter of fact, a feature article in *Beauty Fashion* nearly 50 years ago described men's toiletries as a big coming opportunity and listed the products in this field—a list including more products than are marketed today. Of course, that was in the days of the shaving mug, the straight razor, mustache waxes, and other products that the masculine dandies of two generations ago used to adorn themselves.

The modern business in men's toiletries has been divided into mass-distributed, low- and medium-priced utility products almost exclusively purchased by men for their own use, and a second, almost non-competitive group, the so-called prestige products, beautifully and intriguingly packaged at a much higher price, distributed primarily in the department store and the class drugstore, and heavily purchased by women as gifts.

It was this gift market that took on importance during and following the Second World War. Over 100 new men's lines entered the industry in this

COURTESY YARDLEY

branch of the business. The department store suddenly recognized a highly profitable new source of business, and the consumer enormously liked the idea, to the tune of more than $25 million a year.

The four gift lines that attained major importance and led to recognition of this field were Sportsmen, Seaforth, Courtley, and King's Men.

Now, as far as distribution in stores equipped to sell the gift market goes, these gift lines have retreated to some sort of a vague middle ground. Which leaves the department store with hardly a brand of men's toiletries that could make them the preferred gifts they were 10 years ago.

True, the department store has a wide selection of attractive packages at suitable prices, and with every appearance of a satisfactory gift. But most of these products can only be called supplements to a name firmly established in the public eye as a leader in feminine products.

This is not the kind of public image that has as yet found any outstanding favor in a woman's mind when she is buying a gift for a man.

The fact that two of the leaders in the general men's field, namely, Shulton and Mennen, should find the present suitable for entering this prestige, gift, restrictive distribution field with a separate and a distinct line, separate brand names, and separate merchandising policies, is, to say the least, highly interesting.

In an article in the August issue of *Beauty Fashion*, a Mennen sales executive makes the point that the American trend for trading up is switching the great opportunities for market expansion in the men's field from the low-priced utility products to this mixed-up, muddled field of gift products. This market obviously holds enormous potentialities for anyone who understands the psychological factors involved and is determined and willing to adhere to the rules of the game in marketing this sort of a product.

The creative energy in the cosmetic industry almost always provides one or two surprises each year. Just when nearly everybody has begun to think that all the opportunities in research are exhausted, or that the industry has plumbed the depths of new gimmicks or gadgets or package or dispensing improvements, when almost everybody is saying the industry has so plastered the face, the hands, the feet, the body, the lips, the eyes, the nails, the hair, and what have you of the American people that it had better be satisfied simply with the population growth, just about then someone in the industry springs an ingenious idea, which keeps the industry rolling at its fascinating pace. •

ARTIFICIAL SWEETENING OF LIQUID PHARMACEUTICALS

BY M. J. LYNCH AND H. M. GROSS ABBOTT LABORATORIES

In addition to its food value, sucrose (cane sugar) sweetens foods and drugs to make them more palatable. For many decades sugar was the only adjuvant permitted and accepted under pure food and drug enactments, but recently synthetic chemicals have been recognized as safe and advantageous.[1]

Cyclamate, the sweetening agent or component of sweetening agents marketed under the registered trademark Sucaryl by Abbott Laboratories, and saccharin are currently the only acceptable nonnutritive sweeteners for food, beverage, and pharmaceutical use.

Cyclamate was first described in 1937 by Audrieth and Sveda.[2] The sodium and calcium salts became commercially available in 1950. Sodium cyclamate is $C_6H_{11}NHSO_3Na$, molecular weight 201.23. It is a stable, white crystalline powder readily soluble in water. However, solutions are quite stable to heat, light, and air throughout the *p*H range from 2 to 10. Calcium cyclamate is $(C_6H_{11}NHSO_3)_2\ Ca{\cdot}2H_2O$, molecular weight 432.58. It is also a stable, white crystalline powder. Readily soluble in water, solutions are quite stable to heat, light, and air throughout the *p*H range from 2 to 10. Neither salt has appreciable solubility in oils or nonpolar solvents. Solubility data are summarized in Table 1,[3] which shows the solubility of calcium and sodium cyclamate in grams per 100 ml. of solvent at 25° C.

TABLE 1

Solvent	Calcium Cyclamate	Sodium Cyclamate
Water	24	21
25% ethanol	25	16
50% ethanol	25	14
75% ethanol	15	1
Absolute ethanol	1.7	insoluble
Propylene glycol	70	4.3

Cyclamate acid is a white solid melting at 169 to 170° C. It has a lemon-sour sweetness. In determining the neutral equivalent of the acid by titration with barium hydroxide, the end point was between *p*H 7.3 and 7.4, indicating that it is a strong acid.[3]

Saccharin was first prepared in 1879 by Remsen and Fahlberg.[4] Many investigators have reported a typical off-taste from saccharin[5-12] and it has been demonstrated that this off-taste is inherent in the saccharin molecule.[13] Vincent and co-workers[14] illustrated the potentiation of sweetness when cyclamate and saccharin were combined in preferred ratios of 10 to 1, respectively. The use of cyclamate and saccharin in these ratios successfully eliminates saccharin off-taste.

To aid the formulator who wishes to use cyclamate and saccharin, Table 2 will serve as an initial reference for estimating the amounts of artificial sweeteners required to be equal to various concentrations of sucrose.

TABLE 2

Percentage of Sugar Equivalent	Cyclamate % by wt.		Saccharin % by wt.	Total Solids % by wt.
3.5	0.066	plus	0.0066	0.0726
5.0	0.076	plus	0.0076	0.0836
7.0	0.091	plus	0.0091	0.1001
10.0	0.121	plus	0.0121	0.1331
15.0	0.193	plus	0.0193	0.2123
20.0	0.308	plus	0.0308	0.3388
25.0	0.480	plus	0.0480	0.5280
30.0	0.784	plus	0.0784	0.8624

The ensuing discussion describes the broad utility of artificial sweeteners in various liquid products. Artificial sweeteners have several advantages. The cyclamates are 15 to 30 times as sweet as sucrose and the saccharins are 250 to 350 times as sweet as sugar. Artificial sweeteners are well adapted to anhydrous systems and suspension products, since they impart high sweetness levels with very low solid content, suspension caking becomes less of a problem and fluidity is easily achieved. They impart high levels of sweetness in solution products without overloading the solids content of a product; they may be used to prepare calorie-free medicinals for diatetic and diabetic patients; and they may be combined with sucrose to mask off-tastes of drugs. The clean sweetness imparted by cyclamate sodium and calcium have led to their widespread use in beverages. Cyclamates are not metabolized by microorganisms and hence cannot be fermented.[15] Products containing cyclamates do not carmelize and darken if exposed to heat or prolonged storage. Finally, cyclamates have found particular utility in flavoring pharmaceutical products. They are unusually efficient in masking the unpleasant taste of many drugs such as antibiotics, bar-

BLACK STAR PHOTO

biturates, and antihistamines. They have both qualitative and quantitative advantages over sugar for this application. The type of sweetness derived from these synthetic sweeteners is well adapted to masking the bitterness of many drugs.

Pharmaceuticals

Some formulas for noncaloric syrups have been published.[16-19] Bechara and Huyck[20] published the following formula, which is useful as a vehicle for calorie-conscious and diabetic patients.

Methylcellulose, USP		5.0 gm.
Cyclamate sodium, NF		27.0 gm.
Glycerin, USP		2.0 ml.
Imitation strawberry flavor		9.8 ml.
Amaranth solution, USP		10.0 ml.
Distilled water	q.s. ad.	1.0 l.

Procedure: Heat 400 ml. of water to 70 to 80° C. Add the methylcellulose and stir until hydration is effected. Cool to 12° C. to secure complete solution of the methylcellulose. Add remaining ingredients and water to volume and stir until homogenous.

This syrup has been improved in our laboratory by adding methyl and propyl parabens USP in the usual concentrations to prevent microbial contamination. The taste may be improved if a combination of artificial sweeteners is used. Reduce the 27 grams of cyclamate sodium to 13.4 gm. and add 1.34 gm. of saccharin sodium. When high concentrations of artificial sweeteners are required, it is preferable to use a combination of cyclamate and saccharin in the preferred ratios.[14]

This noncaloric vehicle may be used to prepare a dietetic or diabetic cough syrup by adding such medicaments as salts of ephedrine, iodides, antitussives, and antihistamines, which have been found to be compatible in this system.[20] If the flavoring characteristic is citrous, an adjunct to mask the off-taste of these medicaments and point up the flavor is the addition of 0.3 to 0.5 per cent cyclamate acid.

When artificial sweeteners first became prominent, the noncaloric aspect was featured. Recently, other valuable properties have been revealed. Occasionally product formulators deal with drugs that taste so unpleasant that even highly flavored syrups do not mask the medicinal taste. In such instances the addition of cyclamate sodium or calcium in combination with saccharin sodium or calcium appreciably improves palatability.

Following is a formula for a syrup vehicle that may be utilized to advantage for such taste problems.

Drug		As required for 1 liter
Alcohol ethyl, 190 proof, USP		60 ml.
Glycerine, USP		54 gm.
Sucrose, USP		485 gm.
Liquid glucose, USP		311 gm.
Cyclamate sodium, NF		10 gm.
Saccharin sodium, USP		1 gm.
Flavor		q.s.
Dye		q.s.
Distilled water	q.s. ad.	1 l.

Procedure: Dissolve the cyclamate and saccharin in 185 ml. of water, add glycerin and glucose and dissolve the sucrose. Dissolve the flavor in the alcohol. Add the flavor solution, drug, and dye and bring to volume.

This formula contains 48.5 per cent sucrose. The viscosity is considerably less than official simple syrup, USP. Less viscous syrups are easier to pour, and less residual product remains in the product container. The cyclamate-saccharin combination contributes significantly to masking various drug tastes and, because of their concentrated sweetness, it is possible to reduce appreciably the sugar required. This results in reduced viscosity.

A recent patent[21] involving stabilizing aspirin in a modified coconut oil suspension employs cyclamate sodium to sweeten the vehicle. The advantage of a low solid content, possible by the use of artificial sweeteners, can be appreciated in this type of suspension. Cyclamate sodium disperses well in andydrous systems, retains its sweetness, results in more fluid suspensions, and does not contribute to caking of the suspension.

Aspirin (200 mesh)	3.60 gm.
Cyclamate sodium (200 mesh)	1.20 gm.
Citric acid anhydrous (200 mesh)	0.25 gm.
Sucrose (200 mesh)	12.00 gm.
Vanillin (200 mesh)	0.03 gm.
Lemon flavor	0.24 ml.
Lime flavor	0.30 ml.
Coconut oil having a setting point below 60° F.	q.s. 60.00 ml.

This anhydrous principle has been used to formulate suspensions of antibiotics found to be unstable in water. The sucrose may be reduced considerably, depending on the level of off-taste to be masked.

Often the formulator desires to develop a granular or powder product that will be packaged as such until it is to be dispensed. At that time it is reconstituted with water. This formulatory approach may be taken when the active principal displays poor long-term stability in an aqueous vehicle. Before the advent of artificial sweeteners, sucrose was the chief excipient used. Excessive bulk, lack of sufficient sweetness, and slow reconstitution problems have been overcome by the use of cyclamate and saccharin. Following is a typical formulation for this type of product:

	Quality for 1 L. of reconstituted product
Penicillin G. potassium, USP	25.0 gm.
Sulfadiazine, USP	33.3 gm.
Sulfamerazine, USP	33.3 gm.
Sulfamethazine, USP	33.3 gm.
Cyclamate sodium, NF	4.0 gm.
Saccharin sodium, USP	0.4 gm.
Sodium citrate, USP	40.0 gm.
Flavors	q.s.
Sugar	600.0 gm.

Procedure: Blend cyclamate, saccharin, flavors, sulfonamides, sodium citrate, and cane sugar. Mass with a minimal quantity of distilled water. Granulate and dry at 50° C. to low moisture content. Pass dry granulation through 20 mesh screen. Add penicillin G potassium to dry granulation and blend.

This product formulated with the maximum amount of sugar possible, (approximately 836 grams), would have a very poor taste. By employing artificial sweeteners, an acceptable tasting product was developed. It is possible to reduce the amount of sugar to 60 per cent, reducing the granulation bulk volume and facilitating easy reconstitution by the pharmacist.

Another formulatory asset of artificial sweeteners has been noted. Syrupy, thick vehicles have a tendency to increase nausea and vomiting, especially in conditions requiring antidiarrheal or antacid medication. Completely bland products are not acceptable because of the pronounced chalkiness of the drugs employed. Artificial sweeteners add pleasant sweetness, without the cloying viscosity of sugar syrup.

A pectin-kaolin antidiarrheal formula with palatable viscosity and sweetness follows:

Kaolin, NF	200.0 gm.
Pectin, NF	4.3 gm.
Methylparaben, USP	0.8 gm.
Propylparaben, USP	0.2 gm.
Veegum	4.3 gm.
Cyc'amate ca'cium, USP	5.0 gm.
Saccharin calcium, USP	0.5 gm.
Flavors	q.s.
Distilled water	q.s. 1.0 L.

Procedure: The suspending agent is dispersed in water in which the preservatives have been dissolved. Pectin is dispersed and cyclamate, saccharin, and flavors dissolved. Kaolin is then dispersed and the formula brought to volume.

Liquid antacid products are considered objectionable by many patients because of their viscosity. Artificial sweeteners may be used to replace part or all the sucrose, appreciably reducing the viscosity and increasing the palatability.

A popular dosage form employed in modern therapy is that of concentrated drops. These are administered orally, directly or diluted. Artificial sweeteners allow formulation in either aqueous or alcoholic vehicles with high sweetness levels and low viscosity. Low viscosity of drop concentrates allows more accurate dosage and product elegance. A typical drop formula may include:

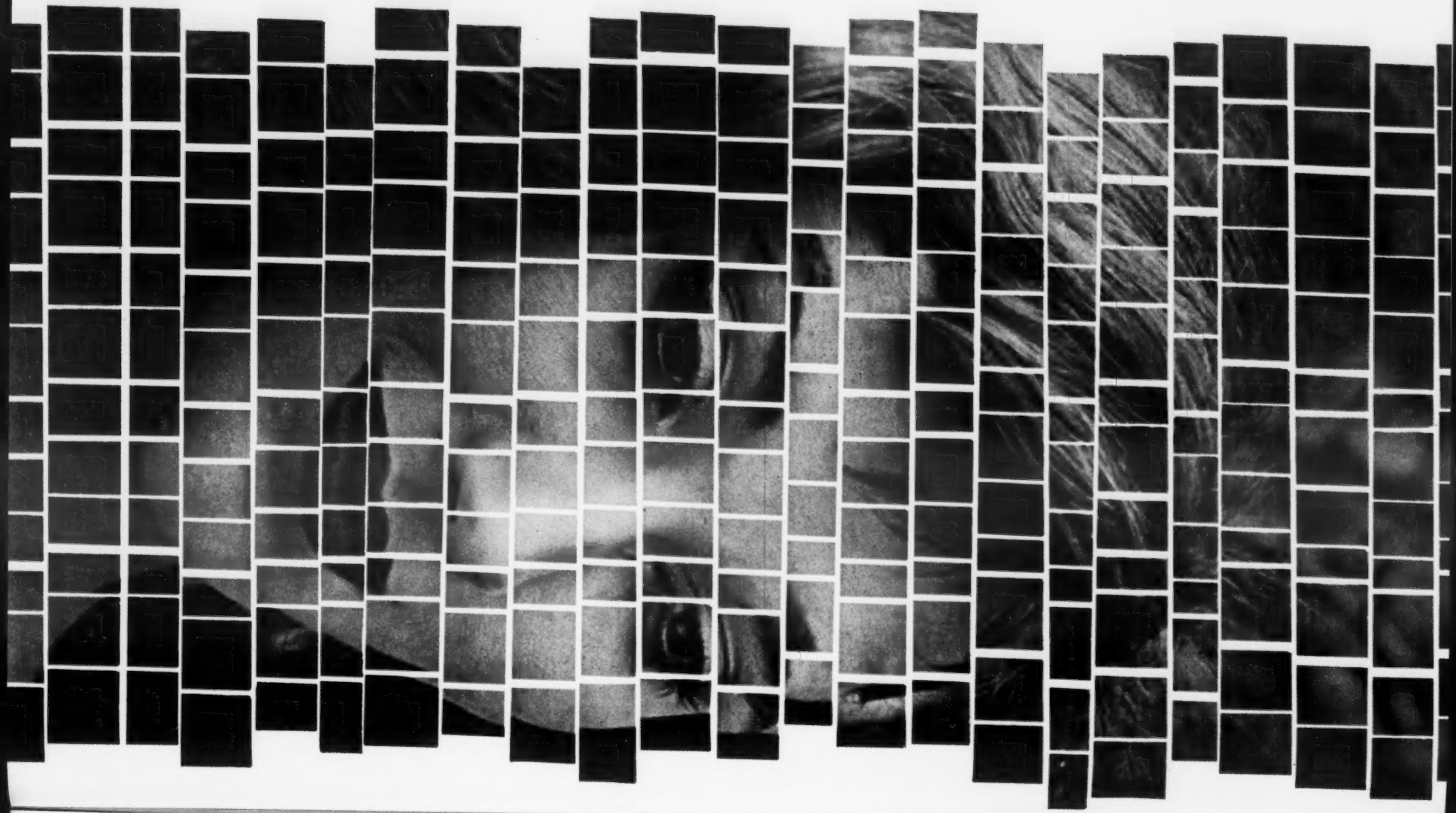
Drug	q.s.
Cyclamate sodium, NF	150.0 gm.
Saccharin sodium, USP	15.0 gm.
Benzoic acid, USP	1.0 gm.
Methylparaben, USP	0.5 gm.
Dye	q.s.
Flavors	q.s.
Distilled water	q.s. to 1 L.

(Continued on page 412)

Packaging and Selling

York Town 1781, Shulton's new men's line,
to appear in October, in a fragrance similar to one of the period in cologne, after shave lotion, and talc. Bottle caps are replicas of Washington's inaugural buttons, bottles of early blue and green apothecary jars embossed with gold-colored gun carriage. Figures on the packages are reproductions of the military attire of the period. Adam Grodin is executive art director for Shulton.

Design by Fred Newey



DOUBLE-WALLED POLYPROPYLENE JAR

The Imco Container Corporation, subsidiary of Rexall Drug & Chemical Company, has recently developed a new double-walled polypropylene jar.

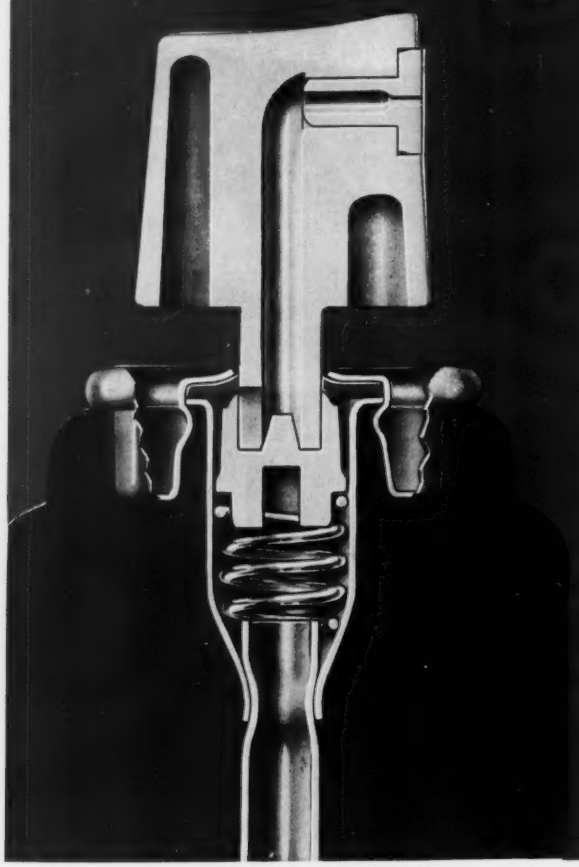
Up to now, manufacturers have had little choice for the packaging of cream products, but Imco's new jar makes it possible for them to present products in the latest plastic materials. The double-wall construction seals in a protective shield of air between an inner wall and an outer wall of the jar.

William K. Archer, president of Imco, commented that the new jar also offers the advantages of extra eye appeal, reduction in breakage, and consumer preference to plastic packaging for items used in the home.

Because of the tremendous flexibility of polypropylene, the new jar promises to revolutionize the cream packaging industry. It can be molded to match the dimensions and capacity of standard flint and opal jars, yet it is five times lighter than flint and lighter still than opal, which effects considerable reduction in shipping costs.

The new jars can be had in any shade or variation of any color, and decoration can be applied by a hot stamp process. •

ANATOMY OF AN AEROSOL VALVE



1. Pressure fills fast because it does not fill through metering orifices.
2. All metering orifices in spray head easily accessible for cleaning.*
3. 360° at spraying surface—twist top.
4. No small orifices drilled in metal parts.*
5. Curved surface on spray button reduces finger fatigue.
6. Spray heads easy to apply after pressure filling.
7. Delivery tubes swedged on—not slipped over—valve body.*
8. Excessive swelling of gasket not detrimental to operation of valve.
9. Spray pattern can be varied completely by changing only spray head.
10. No dissimilar metals used in valve parts.

RESULT: ASSURES FASTER, TROUBLE-FREE FILLING, AND PRODUCES UNIFORM, MISTIER SPRAY PATTERNS

Only Newman-Green gives you *all* these features and advantages in an aerosol valve. How about service? It's complete at Newman-Green . . . whether your order is large or small. Complete from engineering consultation and design . . . all the way to manufacturing and prompt delivery of your valves.

For the most dependable valves and most reliable service . . . for aerosol valves that spark consumer acceptance . . . contact your Newman-Green sales representative today. He'll be glad to help you solve your aerosol packaging problem.

*Exclusive Newman-Green features.

NEWMAN-GREEN *Creative Aerosol Valve Engineering*

MAIN OFFICE & PLANT
151 Interstate Road
Addison, Illinois
KIngswood 3-6500

EASTERN DISTRICT
415 Lexington Avenue
New York 17, New York
MUrray Hill 7-7147

WESTERN DISTRICT
1144 East Meda Avenue
Glendora, California
MAdison 6-9980

Packaging and Selling

The American mass market can be broken down into a considerable number of specialized markets. This is made evident by the large number of magazines reaching highly specialized fields of interest, each of which is a specialized market for many products.

Each of these specialized markets sustains a huge number of successful, specialized businesses. But they also provide—or at least many of them—a highly interesting avenue of approach for the total mass market.

One of the best examples of a specialized market that has come into considerable prominence in the last decade is the teen-age market.

Not so well recognized as a highly specialized approach today is the enormous leisure market.

There is a great deal of talk down on Wall Street about the leisure market and a lot of talk also in the publishing field, but we have yet to see a real appraisal of this market from some of the industries not intimately involved, yet fortunate enough to have a product which can profit by this new development in American social life.

According to one of the leading brokerage houses in Wall Street, the leisure market is this nation's fastest growing business. These folks estimate that consumer spending will reach a record this year of $43,000,000,000 up $2,000,000,000 from the 1959 level.

Here is a partial breakdown: boating, $2.5 billion; fishing, $2.6 billion; swimming, $1.3 billion; golf, $800 million; hunting, $1 billion.

Of course, this does not include a vast array of other leisure activities, all of which have the American consumer on the go, doing things and spending money.

It would seem to us that this enormous new market holds exciting possibilities for product development in this industry, particularly, at first thought in the cosmetic field.

All these new skin tans are a perfect example. Surely there must be many other opportunities.

Here's a quote from a leading trade magazine in the food field. "Nearly every supermarket operator in California is violating below-cost provisions of the State Unfair Trade Practices Act, and loss-leader selling is threatening to drive some independents out of business."

Although some type of loss-leader law is in existence in 41 states, there is a hopeless lack of uniformity in the applicability and coverage of loss-leader laws and the action available for violation of these laws is given to private parties with little or no state enforcement.

With fair trade losing substantial ground in recent court decisions, it would seem that this further complication in which the loss-leader laws are being ignored indicates increasing trouble for many people who have entered the supermarket.

The next big revolution in mass retailing is going to be the development of nonmerchandising income for retailers. This, according to E. B. Weiss, director of merchandising for Doyle Dane Bernbach, Inc., in a new brochure.

According to Mr. Weiss, retailers are finding that they can make money in a great many ways besides retailing, very often a great deal more money in both volume and net profits.

One way is through real estate. As long as the big boom in new shopping centers and the development of locations for suburban stores by the big-name retailers continue, this will be a likely opportunity for some of the big boys.

Another new source of profit for some big retailers is in banking, that is, credit systems.

Still another is the leasing of departments. In other words, the retailer becomes a landlord.

Still another way is the notable developments in which retailers go into manufacturing, adding a whole new dimension separate and apart from their retail business to their volume of profits.

A way to make money that is not retailing but is associated with it is painfully familiar to many people in this industry, the complicated system of making charges for all sorts of store services.

A few years ago in a survey of cooperative advertising, it was noted by an investigator that in a few of the bigger stores the advertising department had possibly become the highest producer per square foot of space of any department in the store. There was no question but that in many stores co-op advertising was a highly profitable money-making operation for the store, totally aside from the money that goes to the newspaper, television, or radio stations, or any form of paid advertising. The Christmas catalogs are

OPAL . . . the aristocrat of glass
For beauty, utility and all-around satisfaction, opal jars are the most desirable containers for cosmetic creams.
Carr-Lowrey brings you opal jars and bottles at their best. Decorated with your own attractive design, they are outstanding containers for your finest products.
complexion
CREAM
GLASS
STIMULATES
SALES
deodorant
CREAM
cleansing
CREAM
CARR-LOWREY
GLASS CO.
Designers and manufacturers of fine glass containers
Factory and Main Office: BALTIMORE 3, MD. • York Office: 415 MADISON AVE. • Chicago Office: 1572 MERCHANDISE MART

a highly profitable venture and the donations for various promotions are often made on a money-making basis.

Anybody who would like to study this very comprehensive brochure can obtain it from the advertising agency.

The annual meeting of the Brand Names Foundation produced some fighting words. It was plain enough that these fighting words were directed toward anyone in business who had the unmitigated crust to enter into a private label deal with the retailer, but it was not entirely clear to many listeners why the manufacturers present decided that they had a grievance.

If the speaker at this meeting had simply stated that competition from the private-label manufacturer was growing in rapid, substantial volume, that this competition was really hurting, that they were very mad about it and were not quite sure what they ought to do about it, then everything would have been precise and clear to every listener.

Instead, the speaker took what seems to us to be a very peculiar standpoint. As far as we can make out, the private label, from the viewpoint of this foundation, is the coattail rider, the imitator, the thief in the night, and the stabber in the back.

In other words, the advertiser who has invested a great deal of money in advertising in order to gain a superior marketing position and has won as large a monopoly of his market as possible should be allowed, in some way, to retain this monopoly.

To quote, "Such large prior investments in product and marketing pioneering must some how be amortized. When others come along and exploit this pioneering by private labeling these later sellers are the coattail riders of our economy."

We are not quite sure that this means that anyone who advertises should have a vested position protecting him from a nonadvertiser, or whether it just means simply that everyone should be compelled to advertise.

We have had several articles on the growth of private label in America in this department. We have noticed, with surprise, that the private-label brand seems to flourish best in those very fields where there are the largest number of advertised brands and where the largest amount of advertising has been invested. We have noticed that the greatest growth of private label was in the food field in the areas of greatest competition.

In other words, it seems that in many cases the top national advertisers are furnishing the umbrella under which private label flourishes best.

This is not yet an economy for fixed prices, at least until we get a new law on fair trade, nor is it a market where any manufacturer who finds himself in a vulnerable position, for instance, because of too high a mark-up necessitated by extravagant marketing expenses, can find any monopolistic protection.

In the food field, for instance, one of the biggest areas of private-label competition is in coffee. It is not too much to say that quite a high percentage of the American people have decided that some of the big retailers are doing a better job in selecting, roasting, packaging, and pricing coffee than most of the brand manufacturers in this field.

There is plenty of room in this country for the private-label brand. There is plenty of opportunity for a thoroughly competent job to be done by private-label manufacturers in product development, in packaging, in marketing, in brand identification, and in every other way entered into by members of the Brand Names Foundation.

So far, the private label has not penetrated too deeply in this industry in either cosmetics or proprietaries. There is a substantial volume of private label, but we do not think it equals anything like the percentage of total sales that it had before World War II.

Nevertheless, we think there is an opening with a welcome sign over it wider than a barn door, in many product classifications where there has been no particularly original creative research, where the products are recognized as staples, and where the marketing costs of the national manufacturer have necessitated too high a product cost to the consumer.

The trade must have been somewhat in the mood of "here we go again kids" when it first heard the announcement of the American Dental Association certifying Proctor & Gamble's Crest.

This announcement was a stunning one in the trade. No one has ever expected the ADA to endorse a branded product and this first endorsement, a complete reversal of previous policy, had the shattering effect of a large-sized bomb in tooth paste circles.

Now, among the many questions that arise from this endorsement, the most important will be: What chain of events has been triggered when a great professional society like the American Dental Association foresakes all policy and endorses a package product, naming a specific brand name when it is fully aware that this product is the property of one manufacturer in a fairly large competitive group, controlled by patents in which the formulation is patented by a School of Dentistry at Indiana University?

In other words, if this product will specifically improve the health and care of the teeth and is a specific aid in combating dental decay, then will one company in the trade, working through a public university and with public approval from a professional society, be able to maintain this unique position which gives it the sole right to use this product?

This is a third attempt of Procter & Gamble in the dentifrice field. Its first attempt, Liquid Teel, in the Thirties, laid an egg and was dropped several years later. Then came its present tooth paste Gleem, which was introduced in the middle Fifties with a

New! Now You Can Package Your Cream Product in a Linear Polyethylene or Polypropylene Jar

This IMCO double-walled jar is made of new linear polyethylene. It is an unlined jar which is impermeable enough to hold most cream products. It is molded to match the dimensions and capacity of standard flint and opal jars... yet it is five times lighter than flint, lighter still than opal. □ It represents a major breakthrough because it makes the tremendous flexibility of linear polyethylene and polypropylene available to the cream products industry. You can have color, all the color you want, any shade, any variation. At the same time, you can virtually eliminate loss by breakage and save countless shipping dollars. □ If you'd like to test your cream product in this new jar, call your nearest IMCO representative or write IMCO, 75th and Cleveland, Kansas City, Missouri. □

IMCO

CONTAINER CORPORATION

Subsidiary of Rexall Drug and Chemical Company
75th and Cleveland • Kansas City, Missouri

SALES OFFICES: NEW YORK, N. Y. • KANSAS CITY, MO. • CHICAGO, ILL. • LOS ANGELES, CALIF. • COOKSVILLE, ONTARIO, CANADA • MEMPHIS, TENN.
MANUFACTURING PLANTS: BELVIDERE, N. J. • COOKSVILLE, ONTARIO, CANADA • KANSAS CITY, MO. • EXCELSIOR SPRINGS, MO. • HARRISONBURG, VA. • GOLETA, CALIF.

massive advertising assault rumored to have reached many million dollars within a brief period, which successfully established Gleem in middle position in the trade dentifrices.

The tooth paste business has been through a series of episodes, each of which shook the trade to its boots, each of which produced its period of public interest and excitement and large new volume, and each of which have pretty well faded with time. Even those not long in the trade will remember the great ballyhoo of the ammoniated products and the chlorophyll products, followed by a number of lesser miracle products.

Running alternately or currently with these chemical miracles, we have had a series of basic appeals based on different flavors and various packaging and dispensing contrivances, and on such exotic discoveries as the red-and-white stripe tooth paste.

It may be that tooth paste has at last arrived at a point where it will serve a functional purpose in limiting or preventing tooth decay. Quite a bit of work is being done on silicone additives and on such products as quaternary amines by the big makers.

Another intriguing factor in this whole situation is that there are two suppliers of stannous fluoride in the country. Although the tooth paste market for this chemical is, at present, a tiny one, if the idea of stannous fluoride does become an important factor in oral health, not only in tooth paste but in other products, it will be interesting to see just what happens to the patent.

Revlon has a new training program for sales representatives to be assigned to independent retail drug stores. College-trained men with sales experience are being recruited for this course and will be assigned to a territory in one of Revlon's 17 nationwide sales districts after completing the six-week course.

General Foods Corporation, the largest of all food packagers, "invested" nearly $110 million in advertising during its 1960 fiscal year, which ended last March 31st. This was an increase of 14.6 per cent over the $96 million spent for advertising in the previous year.

These expenditures include all media costs and also all of the money spent in all forms of promotions to stimulate the sale of each of the 250 individual brand-name products.

We cite this as an example of a corporation that is making a really enormous sum of money spent for promotion pay dividends. According to the corporation president, "Yes, advertising and promotion costs money, but our earnings and growth record indicate clearly that it pays. As we have more businesses and brands to promote, we must be—and are—prepared to spend more funds to sell our growing number of products. General Foods is now in that exclusive select circlet of billion dollar annual sales companies."

An interesting point made by this executive is the change in age groups in our market. "In the next five years," he said, "the group from 15 through 19 years of age will jump almost 30 per cent, against 9 per cent for the total population. By 1965, close to half the people in the country will be under 25."

New developments are expanding the production and use of plastic bottles in an astonishing way.

This expansion is coming largely because of the new form of plastic known as high-density or linear polyethylene.

This is a tougher and stronger plastic than the low-density of the earlier bottles. It is flexible in a way that eliminates splitting or cracking, and yet, is rigid enough to prevent the bulging of most products. In addition, linear polyethylene is so strong that containers can be made with relatively thin walls, producing substantial savings in the weight of the container and in the amount of plastic used.

Bottles are being made of the new by the process known as blow-molding. This means that very often fairly intricate forms can be made in one step, rather than by the older method using two or more fabricating steps.

While the new plastic bottles are now produced by a limited number of companies, prophets in the field think a great many manufacturers will enter either to exploit local or specialized markets, or to protect their own position in the packaging field. A rapid expansion is expected, not only in production and consumption, but also in the number of manufacturers entering into the plastic bottle field.

An anti-tooth-decay additive for sugar and candy is under research at the National Institutes of Health at Bethesda, Md. There are hopes that this research, which is in its early stages, will turn up an inhibitor to counteract the formation of acids liable to decay.

We wish some of this research could be devoted to preventing the action of calories for such things as applie pie.

Self-service is supposed to be one of the great retail inventions of this era. But it has one major fault: it tends to equalize too many vigorous competitors.

As a result, some of the toughest competitive battles in selling have taken place in supermarkets in a fight for preferred shelf space.

Now it appears that the next step is being tested by Chesebrough-Pond's in an experiment with Ralph's Grocery Co., a 40-unit California food chain.

This is a test of personal selling and manufacturer-paid demonstration in a self-service supermarket. The cosmetician-demonstrator is stationed in the store on Friday morning and continues through Saturday evening. A special display is set up for the demonstrator, and customers are informed of the program in week-end ads and window banners. Housewives are asked to bring their beauty treat-

ment problems to the cosmetician.

Many in the cosmetic industry are vociferous in their criticism of department store operations, because of the high cost of doing business through the department store and the endless difficulties encountered in the demonstration system, which is fairly universal.

All these problems were supposed to have been solved by the magic invention of self-service.

Competitive pressures could have been expected to force manufacturers step by step to make various concessions to retailers as powerful as the supermarket. It is rather strange, however, to see a grocery department turning into a department-store type of operation.

Hazel Bishop, Inc., has just filed a stock registration statement with the Securities and Exchange Commission, and thereby exposed quite a bit of interesting information to the public.

A great deal of this information is financial, and consequently of interest to a limited number of people, but there is some marketing information of general interest.

Hazel Bishop was founded 11 years ago by Miss Hazel Bishop, who was then a chemist in the laboratory of an oil company, but who is no longer with this cosmetic corporation. The company was started with very few dollars but with an advertising catch phrase which later proved to be the principal ingredient for a remarkable success story.

Last year this company sold 20 million individual packages of its nine principal products in 100,000 retail outlets. The company has 200 employees.

The chief product is the lipstick which comes in two types, no-smear and Formula 77, at 79c and $1.00, and in 12 shades. This product accounts for 45 per cent of the company's volume. Facial cosmetics and eye makeup represent approximately 35 per cent of the volume.

Approximately 20 per cent of the company's sales are made to a leading variety store chain (which almost anyone can guess must be Woolworth). No other customer accounts for as much as 5 per cent of the company's volume.

About $30 million have been spent for advertising on network television in the past ten years.

Included with the statement is an exhibit of a contract entered into between Hazel Bishop and a private label company, in June, 1959, to manufacture all of Hazel Bishop's cosmetics. This contract provides for a daily minimum of 80,000 lipsticks, 15,000 perfume sticks, 20,000 ultra-matic mascara, 10,000 tubes of mascara, 15,000 of eye shadow, and 3,000 of cake mascara.

On March 22, Hazel Bishop notified the supplier it was terminating the contract as of July 31, and is now in the process of re-negotiating the contract. If this contract cannot be re-negotiated and a satisfactory substitute cannot be found, the company may be again required to manufacture its own products, according to the statement.

According to the summary of earnings submitted, Hazel Bishop sales in 1954 exceeded $12 million but slipped from $11,245,421 for the fiscal year ending October 31, 1955 to $10 million in 1956. In 1957 it was $9,800,000, in 1958, $9,200,000 and in 1959 $8,672,029.

The net loss of sales was more than $1 million annually in 1955, 1956, and 1957. It was $671,000 in 1958, and $139,000 last year.

The Federal Trade Commission has just made a decision which, if it is upheld in court, will prove a tough one for business. This decision, which the FTC admits goes beyond the specific language of the law, states that it is an automatic violation of the FTC Act for a purchaser knowingly to induce a seller to grant discriminatory advertising allowances.

This violation is automatic, that is a "per se" offense, which means that injury to competition need not be proved.

The Robinson-Patman Act specifically makes it illegal for a purchaser to induce a seller to grant him a discriminatory price, but does not specifically touch on the purchaser's responsibility in inducing discriminatory advertising or promotional allowances.

This granting of discriminatory promotion and advertising allowances and other services on the part of the seller is clearly prohibited by the Robinson-Patman Act.

Now, apparently, the FTC is reading into a legal responsibility also of the buyer all the limitations of the seller in discrimination in any form of selling.

Lehn & Fink Products Corporation is entering the hair coloring field with the acquisition of Noreen Inc., Denver. This purchase brings Lehn & Fink, which manufactures Dorothy Gray and Tussy cosmetics, Ogilvy Sisters hair preparations, Hinds honey and almond cream, Etiquet deodorants, and other cosmetic products, into what appears, as of now, to be the fastest growing branch of the cosmetic industry.

If you would like to know what you could earn as a cosmetic retail salesman, here is what Revlon offers in a recent *New York Times* advertisement for salesmen.

"We'll train you at our New York headquarters; start you with a salary of $435 per month, with two salary reviews in the first six months; give you a liberal expense allowance, comprehensive benefit program, and automobile—as well as back you up with solid national advertising and promotion."

As a clincher, the advertisement states, "A management position can be yours in 3-5 years if you are the hard-working individual who can effectively assist our dealers in merchandising the Revlon product line in franchised drug and department stores."

News in Packaging . . .

Aerosol Packaging Contest

The ninth annual aerosol package awards contest conducted by the Aerosol Division of the Chemical Specialties Manufacturers Association has been announced. Fifteen categories are included, among which are room deodorants; shave products; hair preparations; perfumes, colognes and toilet waters; other personal products; medicinal and pharmaceutical products; and veterinary and pet products.

The best package from each group, as well as the best package of the show, will be chosen, and announcements of winners and the award of certificates will be made at the annual meeting of the Chemical Specialties Manufacturers Association in Florida.

Entry blanks are available from Association headquarters, 50 East 41st Street, New York City 17, and entries must be made before October 15. Products submitted must have been offered for sale prior to September 1.

Packaging Forum

An entire day of the Packaging Institute's annual national packaging forum to be held from October 31 through November 2, will be devoted to drug and pharmaceutical packaging. Hugh Horner of Chas. Pfizer & Co. Inc. is chairman of the morning meeting on November 1, and Carl B. Burnside, Eli Lilly and Company, is chairman of the afternoon session.

The morning moderator, Charles Spanello of Schering Corporation, will introduce three speakers: L. I. Volckening, president, Ivers-Lee Co., Louis H. Pfohl, president, Plaxall, Inc., and A. R. Cozzolino, manager, Stretch-Pak Division, The Nevins Co. Their theme is "Unit Packaging —A Look into the Sixties."

The afternoon session, "Exploding Use of Drug and Pharmaceutical Plastic Bottles in the Sixties," will be moderated by James L. Eagan of Rexall Drug and Chemical Company. Speakers are W. O. Bracken, plastic sales development, Hercules Powder Co.; Carl F. Massopust, Chemical Division of Rexall Drug; Anthony Iannacone, technical director Fluid Chemical Co., Inc.; and W. J. Graham, Blown Plastics Division, Owens-Illinois Glass Company.

Hair Cream in Polyethylene

Nutress Laboratories of North Hollywood, Calif. has introduced Creme Hair Proteinizer in a milk-white polyethylene tube developed by the Bradley-Sun Division of American Can Company. The two-ounce container has black and red over-printing, and an elongated nose with white urea overcap. The product is now distributed to professional beauticians only, but Nutress plans to introduce it to the retail trade soon.

Purse-Size Hair Spray

Fashionete, hair spray in an aerosol container less than three inches tall, has been introduced by Aerosol Corporation of the South, Arlington, Tenn.

The small size is made possible, according to Aerosol's president, Donald L. Cottam, by virtue of a super-concentrated hair spray formula, which provides firm control, even in humid weather.

The container is iridescent lavender with a white plastic top.

Ethicon's package, which won the 1959 Packaging Institute Corporate Award, uses a grease-proof, wet-strength paper that stands vacuum forming and lamination to foil, does not expand even when submerged in alcohol or steeped in steam cabinets, and is nontoxic, made by Dobeckmun, a Dow division.

Cochran Box Wins NPBMA Prize

The National Paper Box Manufacturers Association has awarded its annual prize for superiority of box construction to the new Jacqueline Cochran perfume packages designed by Ehrman and Reiner, Inc.

The package has a lattice-work pattern reminiscent of Moorish architecture, which, makes the contents partially visible. The family includes a three-inch perfume box, a 4½-inch essence box, and a hinged set-up box by the Wallace Paper Box Corporation, which contains both the perfume and the essence.

The color scheme is blue and gold on white lustre board, and the pierced-screen cut-outs are extended to the edges of the smallest package. The cover of the perfume package was produced on folding-box equipment.

(*Continued on page 342*)

Mr. No Can Chew—Chinese egg introducing doctors to Hoffmann-La Roche Rovicote vitamins—illustrates that Rovicote is a coating for taste-free and chewable B-complex vitamins.

Sporostacin cream, Ortho Pharmaceutical's topical fungicide, in a milk-white polyethylene tube by Bradley-Sun Division of American Can. Wrap-around label is blue, grey, white.

New Jacqueline Cochran package cosmetic designed by Ehrman & Reiner, Inc., which recently won an award in the National Paper Box Manufacturers Association competition.

HUMAN PLACENTA EXTRACT

(LYOPHILISED)

what is it?

Disease free and carefully selected placentas are obtained by aseptic techniques and are quick frozen. Then, at the manufacturing site, the blood serum is removed. The residual tissue is subjected to a series of freeze-thaw steps causing the cells to burst, releasing in liquid form all the bio-active stimulating substances, as reported in the literature. Among them are . . .

Enzymes (primarily alkaline phosphatase, acid phosphatase, oxidase and peroxidase); Amino acids (aspartic acid, glutamic acid, serine, glycocoll, threonine, alaline, tyrosine, valine, lysine, histidine, arginine, oxyproline, phenylalanine, leucine, isoleucine, proline); Mineral ions, especially sodium and potassium; Nucleic acids; Proteins and/or peptones; Also, folic acid, progestin, estrogen, androgen, prolactin, corticosteroids, chorionic gonadotrophins, vitamins, oligo elements, thyrotrophic hormones, pregnanediol-3-a. etc.

This liquid is then dehydrated to a powder by a freeze-dry process. Thereby all of these bio-active components are preserved unaltered. To reconstitute, simply add distilled or de-ionized water.

what will it do?

There is an abundance of scientific literature detailing remarkable effects of this material on normal and pathological skin. Among many others, Michel Prunieras* reports a notable number of remissions in psoriatic conditions. This is only one of many dermatological findings reported. Others deal with senile skins, acne, etc.

Our work at a leading University definitely indicates that most cosmetic preparations or drug bases actually depress skin respiration. Utilizing reconstituted Human Placental Extracts Lyophilised offsets this phenomenon.

write for suggested formulations, etc. . . .

R.I.T.A. CHEMICAL CORPORATION

612 N. MICHIGAN AVE. — CHICAGO 11, ILL. — PHONE SU. 7-0051

*Michel Prunieras, LA THERAPEUTIQUE TISSULAIRE EN DERMATOLOGIE, No. 205, July 1949 -

WHAT'S IN THE JAR

It may be your cosmetic product.
But more important—what's in what's in the jar? If the answer includes Witco's quality cosmetic-grade stearates or surfactants, there's better texture, improved appearance and superior quality in that cosmetic. And in any jar, it's a cosmetic with the extra touch that creates repeat sales.

WITCO COSMETIC-GRADE STEARATES include Aluminum, Magnesium, Calcium, Sodium and Zinc stearates. They are used extensively to improve adhesion and water-repellency in powders, cold creams, facial creams and ointments... to gel or emulsify creams and shampoos... to increase bulk and oil-absorption of cosmetic powders. Witco cosmetic-grade stearates are manufactured to T.G.A. standards.

WITCO COSMETIC-GRADE SURFACTANTS include quality emulsifiers, opacifiers and wetting agents such as:

EMCOL 4100 Series—flash foamers
EMCOL 5100 Series—alkanolamine condensates, both viscosity builders and foam enhancers
EMCOL E-607—deodorants, detergent-germicides
EMCOL E-607S—emulsifiers and conditioners
EMCOL MAS—opacifiers
EMCOL 61—hair conditioners

WITCO FATTY-ACID ESTERS—standard or tailored to your needs include:
EMCOLS MST, CA and MS—glycerol monostearates
EMCOL PS-50—propylene glycol monostearates
EMCOL RDC-D—diethylene glycol laurate
EMCOL CAD—diethylene glycol stearate
EMCOL DOS—diethylene glycol oleate
EMCOL H-38A, EMCOL H-31A, EMCOL H-35A—polyethylene glycol esters—laurate, oleate, stearate

WITCO®
CHEMICAL COMPANY, Inc.
122 East 42nd Street, New York 17, N.Y.

Chicago • Quincy-Boston • Akron • Atlanta • Houston • Los Angeles • San Francisco • Montreal and Toronto, Canada (Soden Chemicals Div.) • London and Manchester, England

(*Continued from page 339*)

Set-Up Boxes, Five to One

The National Paper Box Manufacturers Association has announced that, in a marketing research study, department store customers prefer the set-up box to the folding box by five to one.

This preference, in combination with the fact that set-up boxes are kept for re-use by nine out of ten of those whose purchases are made for themselves, can be a powerful factor in creating a favorable store image and in serving as a reminder of that image in the home for considerable time thereafter, according to Wallace Ungemach, president of the Association.

Another conclusion drawn from the study is that all types of customers have strong packaging preferences.

The first study to be sponsored by the N.P.B.M.A., it was conducted by Don White, Inc.

Feminine Hygiene Powder Now in Single-Dose Form

The S. E. Massengill Company has introduced single-dose Packettes of Massengill Powder, a douching preparation for feminine hygiene.

The package is a combination of polyethylene and aluminum foil, with glassine, providing the sealing needed to prevent escape of the medicinal fragrance of the formula's components. The Packette is especially convenient for travelers.

It is available in boxes of 12 Packettes in the company's traditional colors of maroon and bright yellow, as well as in jars.

The design was created by Massengill and its agency, Lee Ramsdell & Company, Inc.

Stanback Company's regular containers of Analgesic tablets now contain a plastic pocket-size pillbox, along with a plastic snap cap. Pill boxes, bottles, caps by Owens-Illinois.

Pocket Pill-Box Gift

A plastic pocket-sized pill box is being enclosed with each bottle of Stanback Analgesic tablets by the Stanback Company, Ltd. A plastic snap cap is provided for the glass bottles, which come in two sizes, holding 50 or 100 tablets.

Pill boxes, bottles, and snap caps, are all supplied by Owens-Illinois Glass Company; labels by Rowan Printing Company; and cartons by Lassiter Corporation.

Removable Labels

A removable label formed of rayon-acetate has been introduced by the Avery Label Company of Monrovia, California.

The new Fab K-3, which firmly grips a wide variety of surfaces including leather, wood, rubber, metal, glass, and paper, is easily removed when desirable. Its flexibility also allows it to adhere smoothly on curved surfaces. The labels can be printed, or marked by type, rubber-stamp, or ballpoint pen.

Purse-sized aerosol deodorant, "8 x 4 Spray," small enough for a handbag, by Doetsch, Gretner & Cie, Basel, Switzerland, an aluminum container with a Risdon Micro-Mist valve.

Packaging-Cushioning Foam Plastic Is Introduced

A new plastic combining the properties of thermal insulation, extreme resiliency, grease resistance, waterproofness, and decorative capability has been introduced by the Dyna-Foam Corporation, Ellenville, New York.

Known as Dyna-Foam, the plastic can be produced at a cost competitive with paper, and can also be used in conjunction with paper.

It is an extruded, low-density, expanded polystyrene foam available in sheets, film, lay-flat tubing, pipe, board, solid rod, and special shapes.

Useful for displays, packaging and cushioning, and insulating, it can be produced in color, takes flexographic, rotogravure, and silk screen inks, as well as offset and letter press printing, and embossing and metalizing.

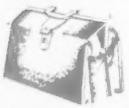
The product is chemically inert, resists acids, alkalies, and lower alcohols, and is nontoxic. Dyna-Foam can be heat-sealed.

Liqueprin, Salicymide Suspension by Johnson & Johnson, in old (left) and new (right) carton designed to give the preparation both better shelf vision and greater eye appeal.

Blow-molded polyethylene bottle by Celanese Plastics Company's Royal Container Department, in 12, 22, and 32 ounces, labeled by decal, offset, or silk screen, with no-drip lip.

Hollandex, skin ointment by Holland-Rantos Company, in package designed by Dixon & Parcels Associates, Inc. Blue and white tubes by Turner-Tubes; carton, Richardson-Taylor.

here's the essence of persuasive packaging



The Answer Man! Got a question about packaging? Your ***Gardner Sales Representative*** has the answer—resourceful sales-powered Persuasive Packaging.

New Whether Predictor! To buy, or not to buy? ***Gardner Market Research*** finds the answers and the reasons why—to guide the development of your package.

* Shape of Things to Come! In ***Gardner Structural Design*** market-oriented ideas achieve form and function. Creativity is shaped by utilitarian and sales factors.

What does an idea look like? Guided by research, ***Gardner Graphic Design*** applies color, type, and imagination to produce a design that changes lookers into buyers.

Nuts and Bolts! ***Gardner Machine Application*** adapts your production machinery to your new packaging program—efficiently and most economically!

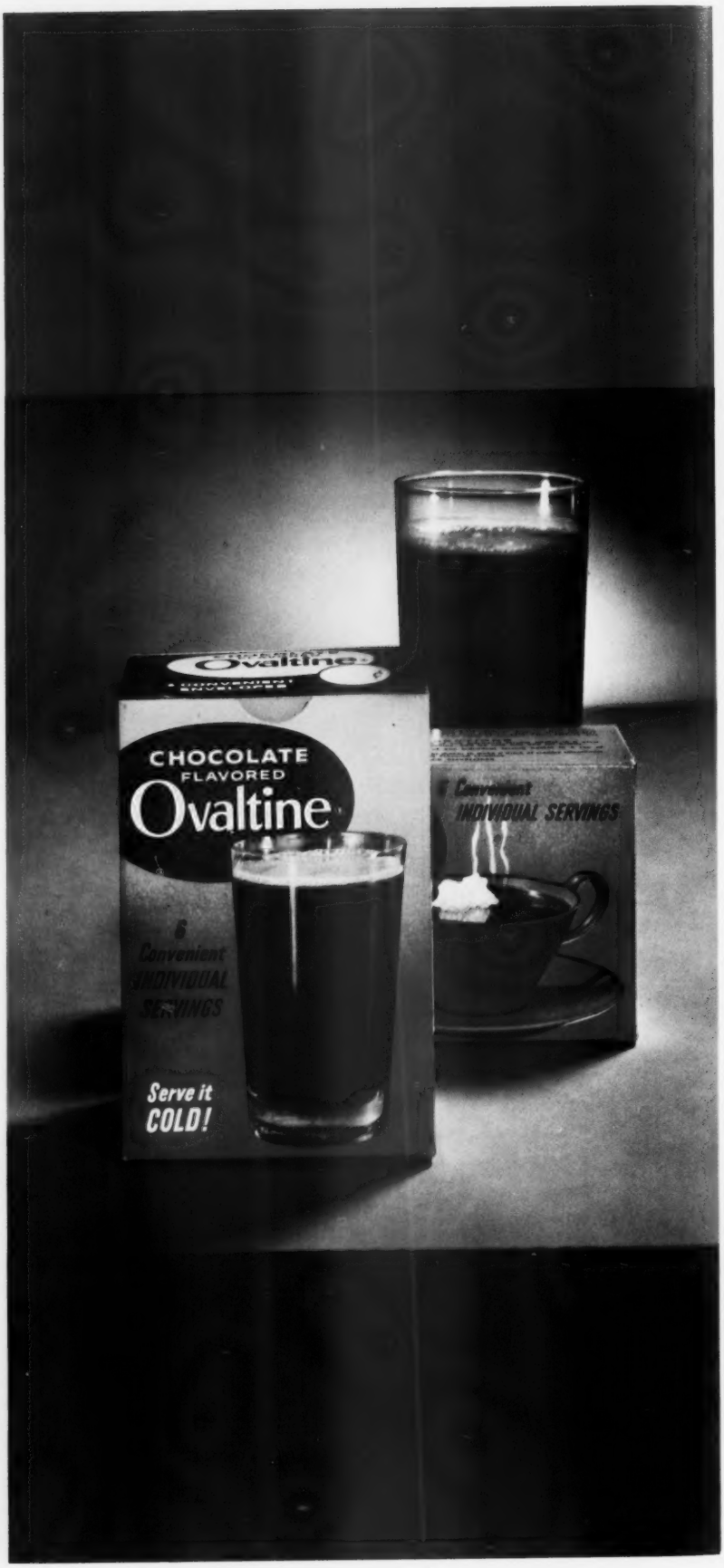
Hypothesis meets the Housewife! Is it really a good idea? Will it sell? If it passes ***Gardner Package Testing,*** you'll see it—if not, back to the drawing board.

* **SHAPE OF THINGS TO COME?** Could be "count down" on the launching of an easier-to-use, easier-to-sell Persuasive Packaging format for you. Gardner Structural Design people are interested in just one thing—package function—how to make your package easier to fill, ship, display, use and **sell.** It's here that the package criteria established by our market research achieves form and function. Boxboard is cut, bent and twisted until a new, more effective package shape is evolved. One that sells! ¶ Expert, imaginative Structural Design counsel—another at-your-service Persuasive Packaging plus—yours when you employ the resources of this completely coordinated new packaging concept—Persuasive Packaging. Could your packaging stand a new bend? How about your sales curve? We'll be glad to help you with the launching—just call us.

DIAMOND NATIONAL
THE GARDNER DIVISION
MIDDLETOWN, OHIO

WORKING EXAMPLE OF PERSUASIVE PACKAGING

Look what's happened to Ovaltine. New image, new convenience, new sales power—a perfect example of Persuasive Packaging in action. ¶ It all started with an imaginative Gardner **Sales Rep.** After several discussions with Ovaltine Food Products, he called in **Market Research** to study the Ovaltine packaging program and market. Research recommendations included: brighter, harder-selling package design; a new image with broader market appeal; convenient, individually wrapped portions (tests confirmed the superiority of folding cartons in individual packaging); and the proper size and number of packets per package. Market studies also confirmed that by switching to a folding carton, Ovaltine would be moved up to improved eye-level shelf position. ¶ As you can see, the new package, created by **Structural** and **Graphic Design,** carries out the research recommendations. Front and back pictorial panels show Ovaltine as an inviting refreshment, warm or cold. Vertical and horizontal panel designs permit good display however the product is stacked. Inside, individual serving packets provide new convenience and product protection against moisture. ¶ **Machine Development,** too, played an important role by recommending a choice of two standard machines for more efficient, economical handling of the new package. ¶ To round out the program, the new package was test-marketed and is now being readied for nationwide distribution. ¶ Another Persuasive Packaging mission accomplished—successfully.



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MIDDLETOWN, OHIO

DRUG & COSMETIC CATALOG 1960-1961

The only comprehensive reference book published biennially exclusively for the Drug and Cosmetic manufacturers over the past 29 years.

WHAT'S IN IT?

Alphabetic lists in separate sections giving SOURCES OF SUPPLY FOR ALL RAW MATERIALS, MACHINERY, PACKAGES AND PACKAGING MATERIALS USED BY OUR INTER-RELATED FIELDS.

AEROSOL SECTION listing all contract fillers and sources of supply for all ingredients and machinery for the production of Aerosol packages.

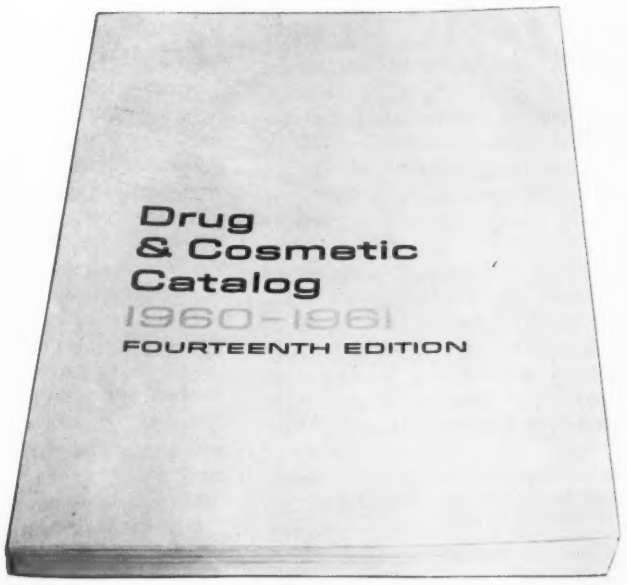
Indices listing TRADE MARKS, TRADE ASSOCIATIONS and TRADE PUBLICATIONS.

A list of all PRIVATE FORMULA houses.

LEGAL SECTIONS AND STATISTICAL INFORMATION showing import and price movements on all raw materials for 10 years past.

The DRUG & COSMETIC CATALOG has a separate section for every phase of the manufacture of drugs and cosmetics. Each section is alphabetized for quick and ready reference use.

It is invaluable in locating and selecting suppliers of basic materials for established or new products, and is the most complete and comprehensive summary published for this industry.



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New York City Tax 3%

BOOK DEPARTMENT

Drug & Cosmetic Industry 101 WEST 31ST. STREET NEW YORK 1, N. Y.

OUR ROOTS ARE DEEP, OUR AIM IS HIGH

but Valves don't grow on trees

Some fifteen years ago, the aerosol industry was born. Shortly after, the Precision Valve Corporation began. As the industry grew, Precision did too, in research, in discovery, in development.

Today, with over 500 employees and more than 60,000 square feet of manufacturing space devoted to over 10,000 different combinations of specifications for aerosol valves, Precision works with the industry to create and develop new aerosol designs to improve current procedures.

Now, on the threshold of further expansion, Precision rededicates itself to serving the aerosol industry and its customers. A major portion of Precision's new plant program will be directed toward research and development; its modern production facilities further improved; its friendly hand extended and dedicated to helping everyone.

Yes, Precision's roots are deep . . . its aim high!

PRECISION
SPRAY
STREAM
DROP

PRECISION VALVE CORPORATION • 700 NEPPERHAN AVENUE, YONKERS, N. Y.

NEWS and VIEWS

BY TED KLEIN PUBLIC RELATIONS DIRECTOR*

23 Cents a Loaf

When the wires connecting the horns of my car burned out a few evenings ago, I was directed to a neighborhood ignition specialist. Mr. Johnson's shop, located in the back yard of his house, is typical of thousands of small businesses that must compete with the giant new car dealers' expensive and expansive "service centers."

Since it was after dinner, and since I was interested in having the damage repaired before taking the car on a short trip, I convinced Mr. Johnson that he should try to fix the horns that very same night.

I helped by holding the light and supplying a bit of conversation to pass the time with him.

As we talked, the conversation turned to politics, the situation in Africa, and, finally, to the price of medical care. He had recently been talking to one of his friends who was bitter about the bill he had received from his physician.

"You know," he began, " I just can't understand it. If a man who earns $25,000 a year goes into the A&P and buys a loaf of bread, it costs him 23 cents. If a fellow who earns $5,000 buys the same loaf, it still costs 23 cents. Now the A&P must figure that at that price they will do all right. Why is it that doctors charge different amounts to people for what they do for them? It just isn't right to my way of thinking for a man to pay for doctoring on the basis of what he earns, instead of on what the doctor thinks the service is worth.

The fee schedules of physicians practicing under our free economy is a basic item in criticism leveled at the medical profession. Advocates of socialized medicine continually talk about the inequities in medical charges by the physician. Mr. Johnson (and doubtless millions like him) wonders why physicians don't have a list of their charges so that anyone and everyone would know what operations cost—regardless of the income of the patient. Maybe such forthrightness would help delay the advent of complete welfare-state medical care?

*Paul Klemtner & Company, Inc.

Executive Health Program

In 1956 an organization was established that has played a vital role in keeping a thousand or so citizens of the greater New York area healthy. Called Preventive Medical Examinations Service, it provides an examining board of medical specialists who are all experts in diagnosis.

Using the latest techniques available to medicine, these physicians supplement the average executive's (or his wife's) family doctor's care. The concept which guides the Executive Health Program is that preventive medicine is only vital if it is properly applied during the productive years of an executive.

The examining doctors are all members of the staff of the Department of Preventive Medicine at Memorial Hospital—all distinguished diagnosticians.

The program depends on annual examinations made in New York, at the convenience of the individual executive. Once he has had his first appointment, the same doctor is available to the individual each year for as long as the patient wishes. Each examination consists of the following: a thorough medical history; a physical examination; blood counts and chemistries; urinalysis; tubeless gastric analysis for achlorhydria; stool examination for occult blood; X-ray examination of the chest and abdomen; the 2-step electrocardiogram; cytologic examination of sputum (for patients who are heavy smokers); and vaginal-cervical smears by the Papanicolaou technique (for women).

The three-hour examinations are designed to detect early signs of heart disease, diseases of the stomach and lower intestinal tract, kidneys, reproductive organs and endocrine glands, as well as cancer.

An evaluation of the patient is prepared by the examining physician and submitted to the individual on a return visit. A full medical report is sent to his family physician. If he wishes, a copy of this is sent to his company medical director.

In many instances, the examining physicians have found incipient diseases that were completely unknown to the busy executive. For example, they have found that one in four patients has a finding not previously suspected or known, and yet of importance to his health maintenance, that is, heart disease, hypertension, diabetes, thyroid disease, metabolic or endocrine disturbances; that one in ten patients has a pre-cancerous condition which is correctable and important for preventing cancer, that is, rectal polyps, leukoplakia; and that one in from 100 to 200 patients (dependent on age) has cancer, usually curable.

This sort of early warning is worth more than words can tell, certainly to the individuals and their families, as well as to the company in which they usually play an important role. We call this service to your attention because, even in the pharmaceutical field where there are many who know a great deal about medicine, many times these individuals are "too busy" to care for themselves.

Hearst on Advertising

"Advertising is your means of public approach. If you make a product good enough even though you live in the depths of the forest, the public will make a path to your door, says the philosopher. But if you want the public in sufficient numbers, you would better construct a highway. Advertising is that highway." So said William Randolph Hearst.

Outstanding Premium

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Organon's successful ball point pen premium.

Patent thoughts and trends

BY THOMAS CIFELLI, JR., PATENT ATTORNEY*

Patent Applications as Filed Should be Complete

The title of this article may well strike many as either being naive or unnecessary. It is surprising how many otherwise well-informed people still feel that a disclosure in a patent should be fragmentary and should withhold a lot of information necessary for the practice of the invention. This attitude, which may have had its genesis from the well-known fact that many U. S. chemical patents which were obtained decades ago, principally on continental European inventions, just could not be made to work. People still holding the view just expressed will naturally consider that any other is rather naive.

Another group holds that, if the law requires a patent application to be complete that is all there is to it and it should be a very simple matter to comply, making unnecessary any discussion. It is surprising how many people who fall in this category are the very ones who may come up with a general idea which has not been reduced to practice, and expect the patent attorney to prepare the patent application without any details at all. An example of this type is the one who, let us say, gets the brilliant idea that it would be wonderful to build an unsinkable battleship. This he tells his patent attorney and, when the attorney asks for specific means which the inventor has in mind for constructing the unsinkable battleship, the attorney is informed that this is a mere detail and the inventor will leave it to the attorney to figure that one out. Admittedly, this is a extreme example, but it is not as far-fetched as may first appear.

The sad fact of the matter is that all too many patent applications are weak because they do not contain a complete disclosure of the invention to be protected. What makes the situation all the more unfortunate is that it exists to a relatively higher degree in those cases filed by the so-called independent inventors. They are the persons who either finance the patent work themselves or through friends. Another group of patent applicants that is particularly hard hit by failure to give a complete story might be referred to as the private entrepreneur, or small company. Inventors who are employees of large corporations with excellent patent staffs do not run afoul of the requirement so often.

The consequences of the failure to give a complete story are usually much more severe in the cases of the individual inventor, private entrepreneur, and the small business than in the case of the large corporation. This is so because of the added financial drain required for filing a new application in those cases where that it still possible. Perhaps even more serious a consequence is the fact that a new application may be barred because of certain intervening events such as, for example, public sale for more than one year in the U. S. A. A large company employee is not normally caught by the patent law with respect to an intervening event prohibiting the filing of a new application, because the patent staff of the large corporation usually is aware of the consequences and in many cases can take the indicated action before it is too late.

So far, this article has been very general in nature. It is now proposed to discuss one phase of the problem in some detail. Reference is made to what in patent terminology is called "new matter." This is the term used by the Patent Office when it takes the position that something which the patent applicant wants to add to the patent application after it has been filed cannot be added thereto because to do so would involve introducing new matter into the case.

The basic patent statute passed in 1952 specifically provides: "No amendment shall introduce new matter into the disclosure of the invention."

The Patent Office has spelled out this statutory direction in some detail in Rule 118, as follows:

"In original applications, all amendments of the drawings or specifications, and all additions thereto, must conform to at least one of them as it was at the time of the filing of the application. Matter not found in either, involving a departure from or an addition to the original disclosure, cannot be added to the application even though supported by a supplemental oath, and can be shown or claimed only in a separate application."

In its Manual of Patent Office Examining Procedure, which is intended to provide the Examiners in the Patent Office with a reference work on the practice and procedure within the office as it relates to their duties and operations, Examiners are told:

"New matter includes not only the addition of wholly unsupported matter, but also, adding specific percentages or compounds after a broader original disclosure or even the omission of a step from a method."

There have, of course, been many cases which have considered the question of whether a certain statement is or is not new matter. As is apparent from what has already been stated, the problem usually arises when the patent applicant wishes to add something to the patent application after it has been filed.

The late Charles W. Rivise, a scholarly student and practicioner of patents, has classified the various types of amendments that involve the question of new matter under the following headings:

1. Amendments purporting to correct errors or supply omissions in features which are essential to the operativeness of the invention or the completeness of the disclosure;

2. Amendments to the specification or drawing, or both, which are only in amplification and explana-

*Richards and Cifelli, Newark 2, New Jersey

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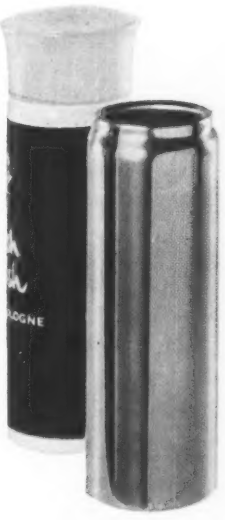

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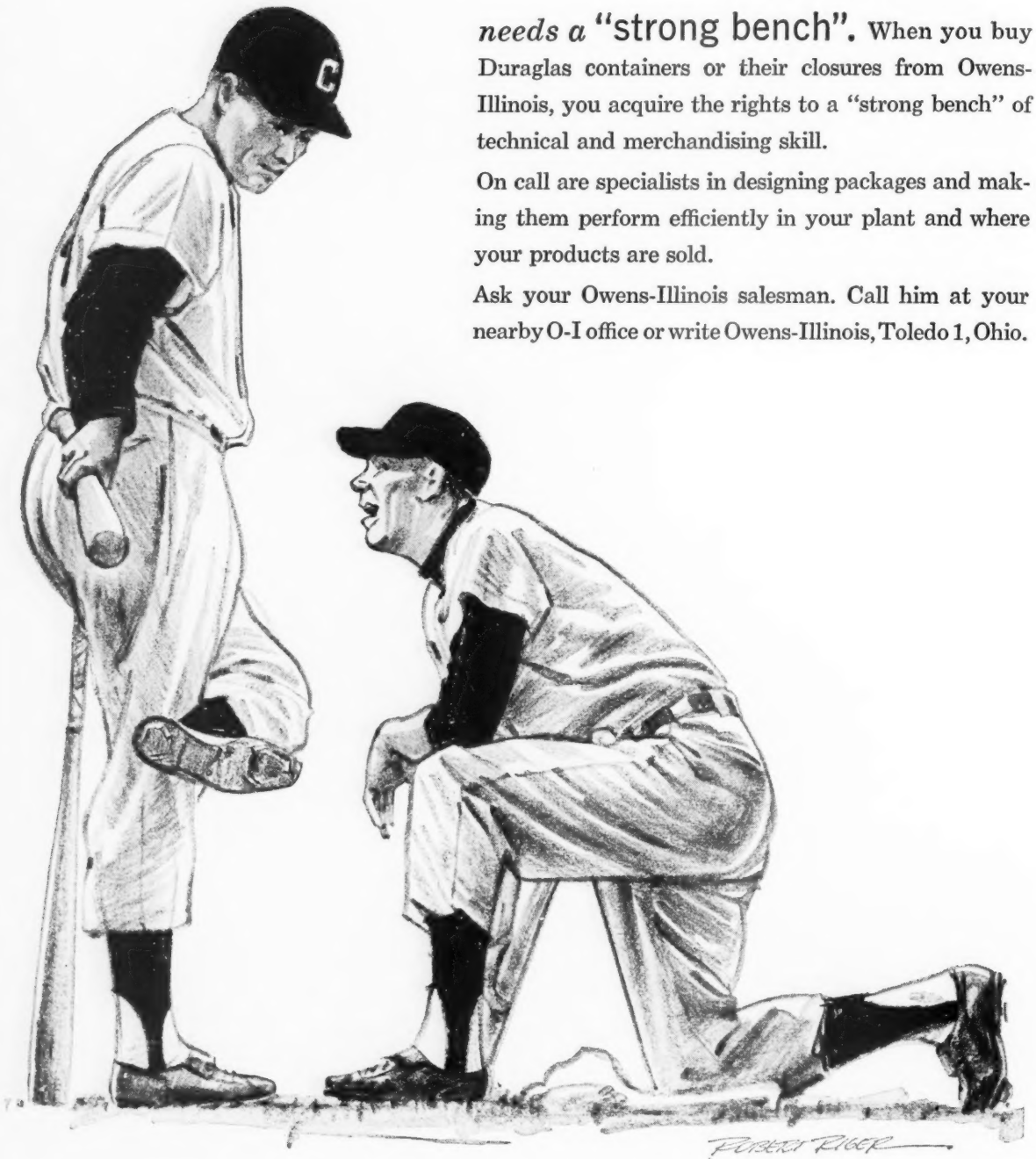

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tion of what has already been reasonably indicated to be within the invention;

3. Amendments purporting to supplement the original disclosure of a broad conception by the addition of a specific embodiment or representation of the invention;

4. Amendments introducing a statement as to what the inventor considers the essence of the invention;

5. Amendments to make the specification, claims, and drawings all conform to each other;

6. Amendments to change the construction of a well-described but inferior arrangement, or to substitute a preferred embodiment of the invention;

7. Amendments to add descriptions of alternative or better forms or embodiments of the invention without erasing or cancelling any of the original disclosure; and

8. Amendments cancelling one or more elements described or shown in the original application.

Inasmuch as we are concerned with inventions in the drug and cosmetic fields, and they very rarely require drawings, we shall not concern ourselves with any of the problems involving situations where drawings form parts of the patent application.

Generally speaking, amendments for the purpose of correcting manifest errors are permissible. So also are amendments that are only in amplification and explanation of what has already been reasonably indicated in the application as field. In chemical cases, amendments adding specific percentages or compounds after a broader original disclosure or even the omission of a step from a method are not permitted. It will be recalled that the aforementioned Manual specifically excludes these items. So also, amendments that add a statement as to the essence of the invention are generally inadmissible, as they are usually afterthoughts inspired by subsequent experimentation or discoveries. Amendments to remove inconsistencies are generally permitted, but amendments to change the construction of a well-described invention are never permissible, as are amendments adding alternative forms of the invention. If the patent applicant wants to change his story so as to take the position that certain steps or other considerations that appear in the original application as being essential are not in fact essential, such amendments will not be permitted.

Some selected cases decided by the Patent Office tribunals and the the Federal Courts will now be considered with the hope that their consideration may clarify some of the problems which may arise in this area.

The Patent Office has consistently refused to relax its rules as to changes in patent applications simply because the changes may be made on the same day that the patent application is filed. This was decided by the Commissioner of Patents 1903 in the case of Dow v. Converse. The Patent Office takes the position that the question is not whether the patent applicant was actually in possession of the invention but whether he in fact disclosed it *in the application* as filed. Nor does it matter if the information in question is disclosed in a co-pending patent application of the same inventor, although there is a court case decided in 1938 which permitted the G.E. inventor, Pipkin, to add a statement by amendment in a continuation of the original application which was referred to in the second application and which was still co-pending with the second application when the amendment was made. Whether the Patent Office will go along with this is not clear, since its last decision on the subject in 1958 contained the following statement which, since it was not necessary for decision, may be considered dictum: "Moreover even if this application were in fact a continuing application, the transfer of subject matter from the prior application would not be proper." The report of the 1958 Patent Office decision does not indicate whether the prior application was co-pending at the time of the attempted transfer. If the parent application were not in fact co-pending at that time, then, of course, the Patent Office and court decisions are still reconcilable.

Of course, if there is a statement in the patent application to the general effect, for example, that conventional processes for conducting Friedel-Crafts reactions may be employed, it is permissible to refer to prior patents or publications by way of amendment to specify the prior known processes to show that the prior processes are in fact known.

A general area of disagreement between the Patent Office and the patent applicants is whether or not the questioned matter sets forth the inherent properties of substances disclosed in the patent application. If it does, then it may be introduced by amendment. In one case, for example, the applicants contended that a certain rubber plate was not subject to "liming up," but the Examiner regarded this as an afterthought. The Board of Appeals of the Patent Office held that this inherent quality of rubber can be stated at any time without the charge of new matter. For a statement on the inherent properties to be permissible after filing, it must be a property which must be obvious to those skilled in the art from the very nature of the material. In a 1955 case, the Patent Office Board of Appeals held that the statement, "There solid and semi-solid resins are further useful as solid or semi-solid propellants when mixed with an oxidant," was not an inherent statement. In the application as filed there was no disclosure that the solid or oils acted as rocket propellants and that such a utility would be obvious to those skilled in the art. This later decision raises the question as to whether the Patent Office would now decide the aforementioned rubber case as it originally did in 1942.

Another area where patent applicants lose out is in connection with the attempted submission of affidavits which go to show that the cited references deal with compounds which do not possess the desired properties of those possessed by the compounds of the application. So long as the particular property has been disclosed—even though in a general way—in the application, there is no problem. However, if the property in question is undisclosed, then the Patent Office will refuse to consider the affidavit. This was shown by a case decided last year by the Patent Office Board of Appeals in a case dealing with certain diamine compounds.

In order to prevent the application of this rule it is desirable that the patent applicant should make a careful and complete disclosure with

(*Continued on page 390*)

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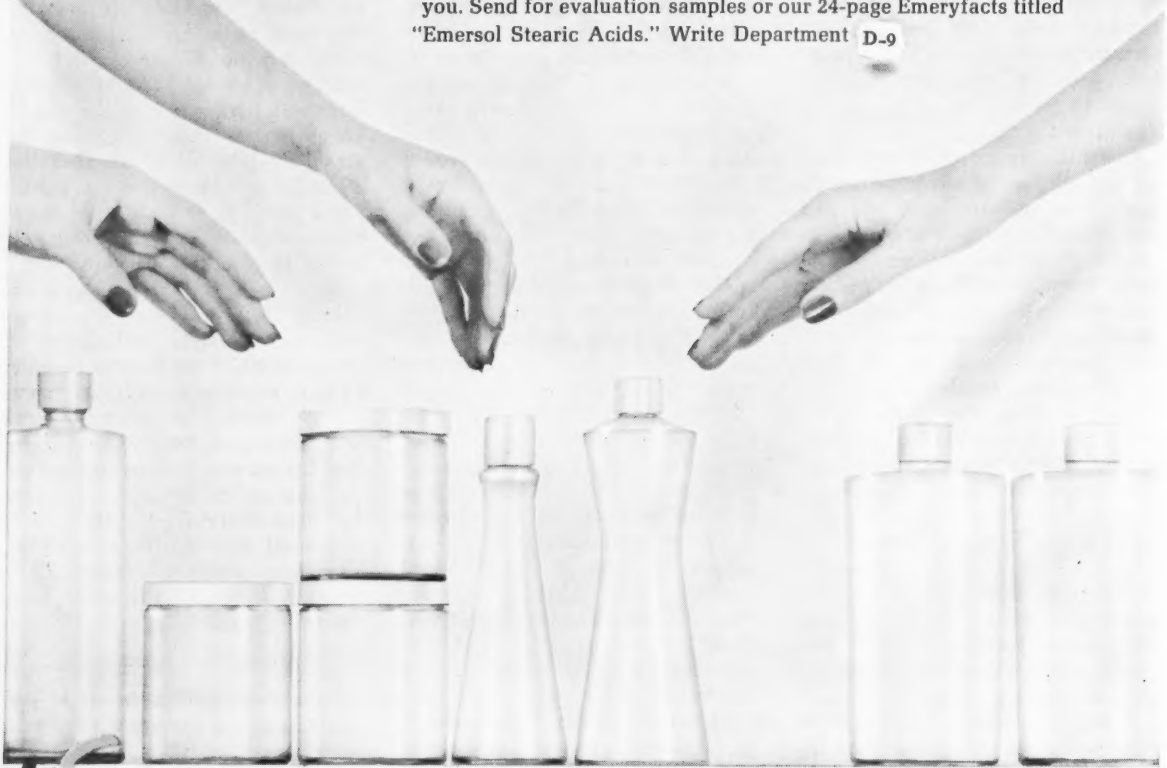

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From left to right: Harry C. Hagerty, director, Commercial Solvents Corporation; Alexander Black, manager, Marketing Division of American Can Company; Roy D. Wilson, general manager, F. J. Stokes Co. of Canada, Ltd.; and Robert W. Montgomery, sales manager of the Verona Aromatics Division of the Verona-Pharma Chemical Corp., succeeding Mr. Wellenkamp, who has been granted partial retirement.

NEWS...

Harry C. Hagerty has been elected to the board of director of the **Commercial Solvents Corporation.** Mr. Hagerty is vice-chairman of the board of the Metropolitan Life Insurance Company and is on the board of several other companies.

Alexander Black has been named manager of the **American Can Company**'s marketing division.

Roy D. Wilson, sales engineer for **S. J. Stokes Company of Canada,** subsidiary of F. J. Stokes Corporation, has been appointed general manager of the Canadian subsidiary.

New sales manager of the **Verona Aromatics Division, Verona-Pharma Chemical Corporation,** is Robert W. Montgomery, who was formerly sales manager of Fritzsche Brothers, Inc. He succeeds Mr. Wellenkamp, who has requested and been granted partial retirement.

Dr. Harold Nash, director of chemical research for **Pitman-Moore Company, Division of Allied Laboratories, Inc.,** has been named director of pharmaceutical research, and Dr. Lawrence Weaver, director of the pharmacology laboratories, has been named associate director. Dr. Nash joined the firm in 1947, and Dr. Weaver in 1953. The former director of pharmaceutical control, Dr. A. E. Jarvis, is now pharmaceutical product development director, as well. He joined the firm in 1947.

Croda Limited of Yorkshire, England, has appointed H. Taylor and N. R. Kirkby as directors of Croda Limited, the principal operating subsidiary, and M. Thwaite as manager of **Croda G.m.b.H.,** the newly formed German subsidiary in Dusseldorf.

Whittaker, Clark & Daniels, Inc., has announced the following promotions: Robert G. Smith, vice-president; John Seidler, former sales manager, vice-president; H. W. Snyder, assistant secretary; Albert E. Williams was appointed sales manager; and C. U. Driscoll is now in charge of cosmetic sales.

David L. Klein, secretary and treasurer of **Endo Laboratories,** is now senior vice-president and treasurer, and Meyer Ushkow, formerly vice-president, now has the additional position of secretary. Two new assistant vice-presidents have been appointed, Jerome Serchuck and Howard J. Barnet.

Myron Walker, president of **Walker Laboratories, Inc.,** subsidiary of Vick Chemical Company, has been elected chairman of the board of directors. Clark H. Carter, who had been vice-president and assistant general manager, has become president and general manager.

Carl A. Bunde, Ph.D., M.D., has been appointed medical research director of **The Wm. S. Merrell Company.** Dr. Bunde joined the firm in 1949.

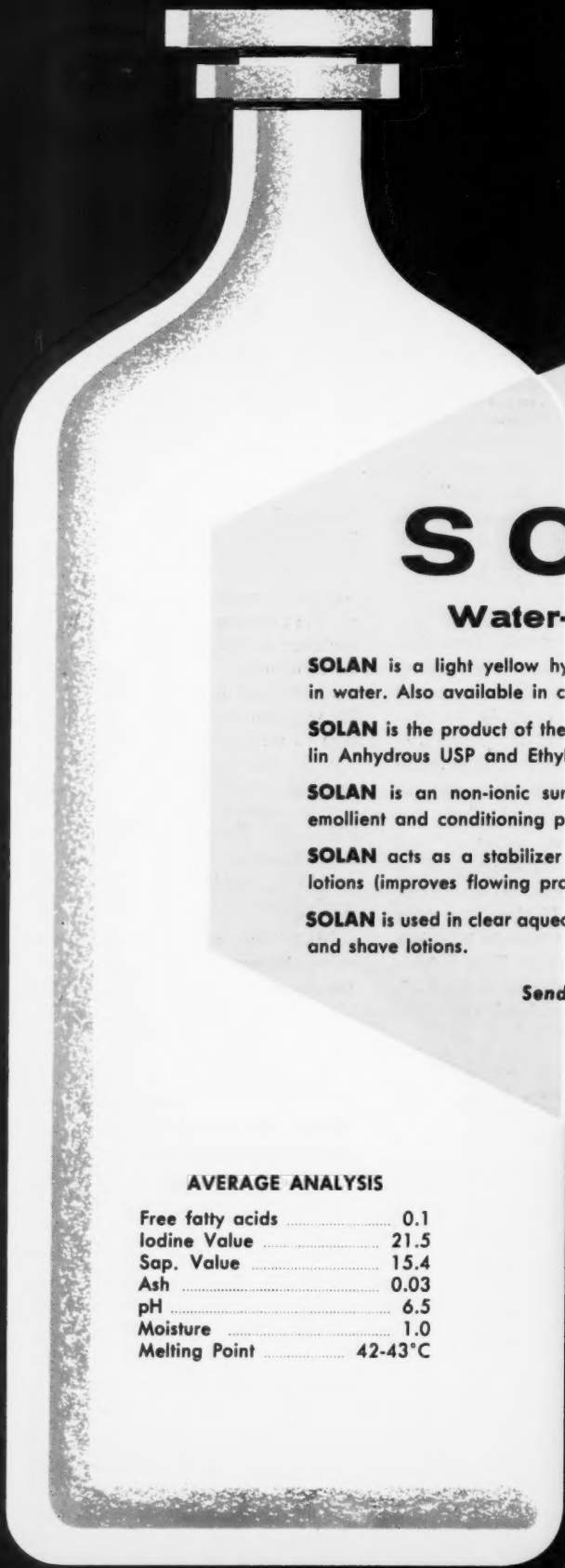
Joel Youkeles has been appointed director of international operations of **The Warren-Teed Products Company.** He will direct the establishment of branches, distributors, and licensees abroad.

Edward R. Mass has been appointed controller and office manager of the newly formed **Industrial Chemicals Division of Stepan Chemical Company.** He was formerly assistant to the treasurer.

Newly appointed medical director of the **Warner-Lambert Research Institute** is Dr. J. R. Beem, who has been director of clinical research since joining the institute in 1959. He will continue in the former position as well. Dr. John Henry Beckley has been appointed director of medical research services for consumer products, and Dr. Arthur D. Flanagan, formerly with Walter Reed Medical Center in Washington, D. C., has been named administrative assistant to Dr. Beem.

Mauri Edwards has been elected vice-president in charge of sales for **Pharmacraft Laboratories.** He had been general sales manager of the firm.

Dr. James Fisher has been named to the **Biological Research Laboratories, Colgate-Palmolive Company,** and Dr. Bernard B. Jatul has been appointed supervisor of laboratories for the **Pharmaceutical Laboratories Division.** Dr. Jatul had served as manager of the pharmaceutical chemistry department of Schering Corporation. Paul J. Anderson, who joined Colgate in 1942, has been appointed plant manager, **Toilet Articles Division.** He had been chief industrial engineer of the Household Products Division. He succeeds Robert L. Ehrlich, who has been named plant manager of the **Household Products Division** in the plant in Kansas City. William T. O'Neill succeeds Mr. Anderson as chief industrial engineer.



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Sap. Value	15.4
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Moisture	1.0
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From left to right: Edward A. Branski, appointed plant manager of the new facility in Goleta, California, which was recently opened by Imco Continer Corporation; Augustus Gibson, M.D., now director of clinical research, Sterling Drug Inc.; Lewis H. Kinsley, chief engineer of the Arthur Colton Company; and Dr. Franc A. Landee, who has been advanced to the rank of research scientist by The Dow Chemical Company.

Edward A. Branski, who has been with the **Imco Container Corporation** since 1951, has been appointed manager of the company's new plant, recently opened at Goleta, California. The new facility, which will produce polyethylene containers, is equipped for blow-molding and for decorating.

Augustus Gibson, M.D., has joined **Sterling Drug Inc.** as director of clinical research and a member of the research board of governors, which establishes and coordinates research for the company's divisions and subsidiaries throughout the world. Dr. Gibson had served as executive director of medical research with Merck Sharp & Dohme Research Laboratories Division. Clarence B. Rex, formerly vice-president and treasurer of U. S. Industries, Inc., has been elected controller of Sterling Drug, and Ralph T. Miller, Jr., has been elected president of **House of Huston, Inc.,** a subsidiary. Mr. Miller has been with the subsidiary since 1947, and became vice-president in 1956.

Newly appointed as chief engineer of the **Arthur Colton Company** is Lewis H. Kinsley, who has served as chief engineer-packaging machines since joining the firm a year ago. Before that time, Mr. Kinsley has been vice-president in charge of engineering and sales for Hope Machine Company, which was purchased by Colton in 1959.

Dr. Franc A. Landee of **The Dow Chemical Company** has been advanced to the rank of research scientist, in recognition of his scientific achievements. He has been with Dow since 1935, when he began as a chemist in the main laboratory.

Wayne E. Edwards has been elected vice-president of manufacturing and research for the **Allen B. Wrisley Company, subsidiary of Purex Corporation, Ltd.** Formerly director of research, Mr. Edwards is now director of manufacturing, research, purchasing, package engineering, quality control, traffic, and warehousing.

The **Continental Oil Company** has announced several appointments: J. G. Hough, manager of the petrochemicals department's chemicals division, has been promoted to general manager of petrochemical sales, succeeding H. P. Solem, who has become executive vice-president of Refineria Panama, S.A., an affiliate of Conoco. The petrochemical sales staff has been reorganized, with S. W. Harris, midwest regional sales manager, promoted to the newly created position of sales manager, responsible for domestic sales of detergents, white oils and petrolatums, petroleum sulfonates, plastic intermediates, and oil field products. A. J. Lacazette, eastern regional sales manager, is now manager of white oil and petrolatum sales. And D. F. MacFarland has been promoted from sales development representative to manager of advertising and sales promotion.

John J. Brennan, field sales manager of the **Chemical Marketing Division of Abbott Laboratories,** has been appointed sales manager. Robert G. Morton, assistant field sales manager, succeeds him as field sales manager.

Louis Brennesholtz, a member of the board of directors of **Yardley of London, Inc.,** has been appointed vice-president in charge of production, a newly created position. He joined the firm 13 years ago as purchasing agent.

The **Gardner Division of Diamond National Corporation** has announced two promotions in its packaging sales organization: Benson B. Martin, formerly retail box sales representative, now manager of the north-eastern packaging sales area; and Stephen V. Gardner, formerly a district sales representative in Philadelphia, now manager of the south-eastern packaging sales area.

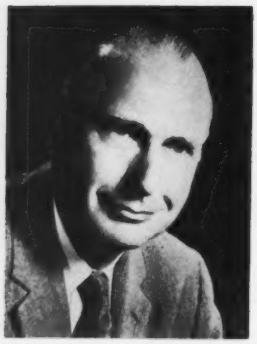
Joseph W. Kerr has been promoted from the position of administrative assistant, personnel department, to manager of the Dallas branch of **Hoffmann-La Roche Inc.** He succeeds Joseph J. De Hope.

William T. Hamor, Jr., has been named manager of the new Houston, Texas, sales district of **Eaton Laboratories Division of The Norwich Pharmacal Company.** The district includes parts of Texas and Louisiana. Mr. Hamor has served as Eaton's medical representative in the Houston area for the past six years. C. Lee Huyck, professor of industrial pharmacy at the St. Louis College of Pharmacy since 1952, has been appointed senior information scientist for **Eaton Laboratories.**

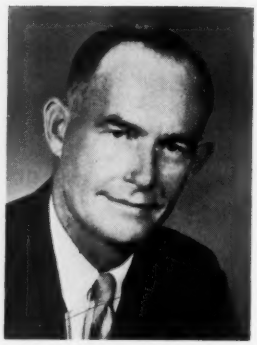
Christopher H. Buckley has been named vice-president and director of sales and marketing for **Knox Glass, Inc.** He had been general manager of the Aluminum Container Division of Kaiser Aluminum and Chemical Corporation.

Albert Verley & Company has appointed B. T. Bush to its staff.

Charles L. Lightfoot has been appointed vice-president of marketing by the **Goldschmidt Chemical Corporation.**



From left to right: appointments by the J. T. Baker Chemical Company —Ralph A. Clark, executive in charge of the expansion program both here and abroad; LeRoy S. Meckley, vice-president and director of manufacturing; Warren F. Schumacher, vice-president for sales; and Charles H. Slater, assistant sales manager with marketing staff responsibility, along with his duties as marketing manager.



In keeping with its expansion policy, the **J. T. Baker Chemical Company** has announced several appointments. Ralph A. Clark, vice-president and a director, has been named executive in charge of expansion operations; LeRoy S. Meckley, a director, has been elected vice-president and director of manufacturing; Warren F. Schumacher has been elected vice-president for sales, succeeding Mr. Clark; Charles H. Slater, in addition to his present position of marketing manager, has been appointed assistant sales manager; and John L. Zapf has been promoted to personnel manager and assistant to the president.

John R. Morehead has been appointed to the newly created position of manager of new product development for the **Glass Container Division of Owens-Illinois Glass Company.** He is succeeded in his former position as manager of the Owens-Illinois glass container plant in Atlanta by Harold Ottesen. Mervyn M. Jenkins, formerly administrative manager of the glass container plant in Bridgeton, N. J., succeeds Mr. Ottesen as Atlanta plant manager.

Leo J. McNamara has been appointed assistant to the president of **Lady Esther, division of Chemway Corporation.** With Chemway since 1952, Mr. McNamara served most recently as administrative president of the Household Products Division.

The **New Jersey Zinc Company** has elected James R. Alexander vice-president in charge of sales, succeeding Robert G. Kenly, who will assume new administrative duties. Mr. Alexander was formerly vice-president of sales with H. K. Porter Company, Inc., Thermoid Division.

Jerome T. Kratina, formerly covering the New York area, is now servicing northern and central New Jersey as sales representative for the **Heyden Chemical Division of Heyden Newport Chemical Corporation.** Mr. Kratina has been with the firm since 1939.

Paul M. Kotuby, a mechanical engineer, has joined the research staff of **The Risdon Manufacturing Company.** He had done research and development work with the Singer Manufacturing Company.

Dr. Jack Freund has been appointed medical director of **A. H. Robins Company, Inc.** With Robins since 1955, he has been director of the department of clinical research since 1958. The company has also announced two promotions, Dr. John W. Ward to director of pharmacological research, and Alan N. Young to administrative assistant to the medical department.

The **Packaging Materials Division, Armstrong Cork Company,** has appointed Robert C. Langsett manager of its newly created merchandising services department, and A. M. Browne manager of the market development department.

New merchandising manager of the **Bristol-Myers Products Division** is Walter R. McCurdy, formerly assistant to the director of trade relations for the company.

Five professional service representatives have been appointed to the sales staff of **McNeil Laboratories:** James R. Dunham, Oklahoma city area; Jack H. Keenan, Cleveland, Ohio, area; William Donald Mitchell, Dallas, Texas, area; Walter L. Solms, Atlanta, Georgia, area; and Robert Thais to the entire State of Hawaii.

From left to right: John L. Zapf, now personnel manager and assistant to the president, J. T. Baker Chemical Company; John R. Morehead, manager of new product development, Glass Container Division, Owens-Illinois Glass Company; Leo J. McNamara, assistant to the president, Lady Esther Division, Chemway Corporation; and James R. Alexander, vice-president in charge of company sales, New Jersey Zinc Company.

From left to right: R. S. Long, general manager of glass container sales, Hazel-Atlas Glass Division, Continental Can Company; Dr. Paul V. Christofferson, assistant medical director, E. R. Squibb & Sons; John

Votel Rush, who has joined the Chicago office of Firmenich, Inc.; Robert P. Dames, in the New York office of Emery Industries, Inc., handling the complete line of fatty acids and hydrogenated glycerides.

The **Hazel Atlas Glass Division of the Continental Can Company** has appointed R. S. Long general manager of glass container sales, and Donald L. Weir Pacific regional sales manager. Mr. Long had been manager of field sales operations, and Mr. Weir was formerly the company's Chicago district sales manager for metal cans.

Dr. Paul V. Christofferson has been appointed assistant medical director of **E. R. Squibb & Sons.** He formerly had a private practice and served on the staff of Utah State University as assistant professor in charge of the Utah Branch Veterinary Laboratory. Dr. Paul A. April has joined the clinical research department as assistant medical director. He has served as an intern and assistant resident at Buffalo General Hospital, and as a fellow in internal medicine as well as resident in rheumatic and immunological diseases at Southwestern Medical School, Dallas, Texas. Four have also been appointed to the **Squib Institute for Medical Research:** Dr. J. S. Paul Schwarz, senior research chemist, biological chemistry section; Dr. Richard A. Hill, in the pharmaceutical research section; and Dr. Raymond Erickson and Dr. Roland W. Kinney, microbiology section. Donald R. Creagan has been named a product sales manager in the sales promotion department.

John (Jack) Votel Rush has joined the staff of **Firmenich Incorporated.** He will be in the Chicago office. Mr. Rush was formerly a technical sales representative with Sterwin Chemicals.

Robert P. Dames has been appointed to the New York area office of **Emery Industries, Inc.,** to handle the complete line of fatty acids and hydrogenated glycerides in northern New Jersey, central and northwestern Pennsylvania, central New York State, and western Maryland.

Union Carbide Chemicals Company has reassigned four sales people: William L. Robertson, from technical representative in the Newark district to assistant, industrial product managers' group; Joseph L. Suhadolnik, from technical representative, Newark district office, to field sales; John L. Gudgel, from the general sales office in New York, to technical representative in the Detroit district office; and Henry J. Keigwin, also from the New York office, to technical representative in the Newark district office.

Dr. Frank H. Netter has signed a new ten-year contract with **Ciba Pharmaceutical Products Inc.,** which assures completion of a 20-year project of painting 20,000 color illustrations of parts of the body and the diseases affecting them. With the company for 14 years, Dr. Netter is currently working on the third of a nine-volume series, "The Ciba Collection of Medical Illustrations."

The **Mead Johnson & Company Nutritional and Pharmaceutical Division** has promoted William T. Shea to group director for pharmaceutical products, and Herbert E. Ashby to sales service manager, a new position. Both had been sales representatives and then entered the company's home office several years ago. Dr. John W. Durkin, Jr., has joined the firm as an associate director of clinical research. He had been practicing medicine in Manhattan, Kansas.

Eugene Di Scala has been appointed art director-packaging at **Shulton, Inc.** He has served as an artist there since 1957.

William T. Murphy has been promoted to field sales manager of the **Flint-Eaton Division, Baxter Laboratories, Inc.** He joined the firm as a sales executive in 1959.

Revlon, Inc., has appointed Milton Handelsman a vice-president. He had served as executive assistant to the vice-president of sales.

Dr. James S. Kaltenbronn has been appointed associate research chemist at **Parke, Davis & Company**'s research laboratories. He was formerly a chemist with Rohm & Haas Company.

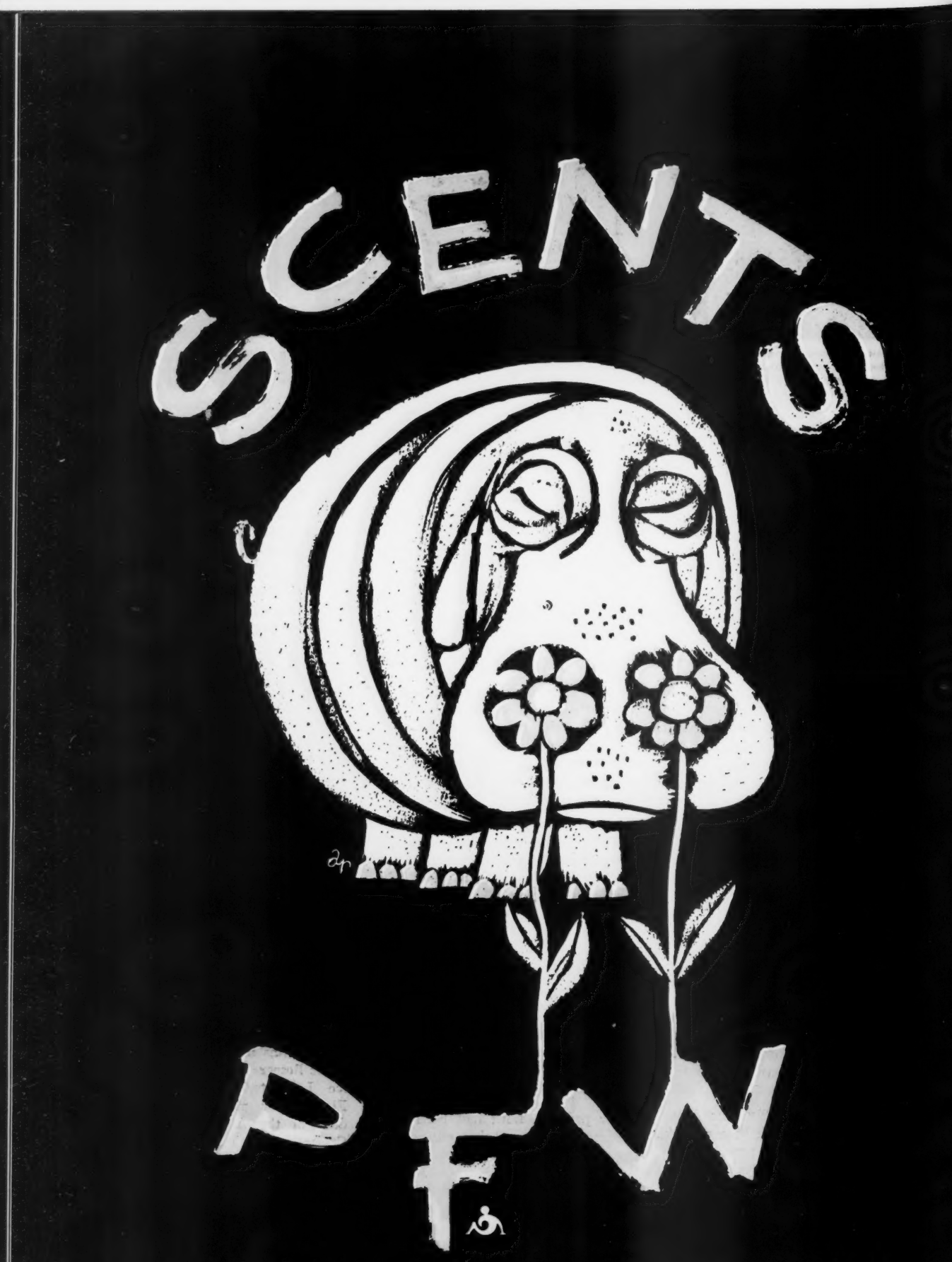
George J. Abrams Resigns

George J. Abrams has resigned as president of the Hudnut-DuBarry Division of Warner-Lambert Pharmaceutical Company. He will announce his future plans later.

Walter P. Kuenstler, director of marketing development for the Warner-Lambert consumer products divisions, has been promoted to the new post of executive vice-president of the Hudnut-DuBarry Division.

SCC President Attends International Congress

H. J. Amsterdam, head of the Cosmetic Research and Technical Service Laboratories of International Flavors & Fragrances Inc., and president of the American Society of Cosmetic Chemists, is attending the International Congress of the Society, which is holding scientific symposiums in several cities in England, Switzerland, Germany, and Spain. Mr. Amsterdam will also visit his firm's plants in Holland, while abroad.



POLAK'S FRUTAL WORKS INC., MIDDLETOWN, N.Y.

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S. T. Goode (left), R.I.T.A. Chemical Corp., and George Kolar, Kolar Laboratories, chat during champagne party by R.I.T.A. Chemical Corp. and Gattefosse S.P.F.A. of Lyon, France, given at the Claridge Hotel in Paris, France, for U. S. Cosmetic Chemists in Paris en route to the International C. C. Seminar in Munich.

Other guests at the champage party (left to right): Dr. J. Cotte, Hopital Debrousse, Lyon; B. Guillot, Gattefosse S.P.F.A.; Miss M. De-Navarre; Mrs. J. Amsterdam; Dr. S. Plechner, Carter Products, Inc.; Miss J. Catapano, International Flavors and Fragrances; (standing) M. Gattefosse; Mr. Goode; J. Amsterdam, I.F.F.

Expansions, New Buildings, New Locations

A subsidiary company with headquarters in Johannesburg, South Africa, has been formed by the **Armstrong Cork International, S.A., Swiss subsidiary of Armstrong Cork Company.** To be known as **Armstrong Cork (Pty), Limited,** the South African company will be managed by Lambert G. Snow, who has been a member of the Armstrong International sales force since 1937, except from 1954 through 1959, when he operated his own business as a distributor of Armstrong products in South Africa.

Other directors are I. Wayne Keller, vice-president and general manager of the company's international operations; Fred M. Ritts, general manager, International Marketing Division; David E. Sanderson, president, Armstrong Cork International, S.A.; and Reginald E. Garwood of Johannesburg.

S. B. Penick & Company has completed the expansion and refinement of its Newark, N. J., antibiotic fermentation and purification facilities, at a cost of $1,250,000. They include automated, continuous recovery and isolation equipment, and will be used not only in producing Penick's standard antibiotics, but also for confidential fermentation for the company's pharmaceutical manufacturing customers.

George Lueders & Company has opened new offices in Suite #1, 1415 Lawrence Ave. West, Toronto 15, Ontario; telephone, CH 9-3841.

A 30 per cent expansion in floor space is being made by the **Arthur Colton Company** in its filling and pharmaceutical machinery manufacturing plant in Mancelona, Michigan. The new space is to be used for manufacturing filling machines, tablet presses, and other tablet manufacturing equipment for the pharmaceutical industry.

Allied Chemical Company's General Chemical Division has announced plans to build a large, new plant at Elizabeth, N. J., for production of its Genetron line of fluorinated hydrocarbon refrigerants and aerosol propellants. The new facility, the company's third such plant, will be located at the present Elizabeth site, and is expected to be completed early in 1961.

Parke, Davis & Company, which has maintained an office in Dallas, Texas, for the past 30 years, has begun operations from a new distribution center in Brook Hollow Industrial Park, four miles from the city's center. It replaces the Taylor Street facilities.

The company has also started construction of a combined manufacturing and sales branch near Bornem, Belgium, about 30 miles from Brussels. It will include a general pharmaceutical laboratory and an administration building, and represents an investment of more than $970,000. Completion is expected in the Spring of 1961.

A district sales office has been established in Atlanta, Georgia, by **The New Jersey Zinc Company,** with Robert W. Munson in charge as southern district sales manager. Andrew G. McFadden will have his headquarters at 878 York Ave., S.W., Atlanta 10; telephone, ATlanta 755-3549.

The **American Can Company** and the **Wheaton Glass Company** have formed the **American-Wheaton Glass Corporation,** which will operate as a majority-owned subsidiary, with a minority interest held by the Wheaton Glass Company of Millville, N. J. The first plants of the new corporation will be at Terre Haute, Ind., and at Minneapolis, Minn., with others to follow, throughout the United States. This marks American Can's entry into the glass container manufacturing industry. The Wheaton family has been involved in manufacturing pharmaceutical and cosmetic glass containers for about 75 years.

Parker Appointed by PMA

Dr. Robert P. Parker, assistant general manager of Lederle Laboratories Division, American Cyanamid Company, has been appointed vice-chairman of the Research and Development Section of the Pharmaceutical Manufacturers Association.

ROBERT P. PARKER

Jacques Weill, Paris manager, International Flavors and Fragrances, France, and Mr. and Mrs. C. R. (Bud) Keeley, advertising director, *Beauty Fashion,* enjoying an evening at the Lido, Paris, during their recent European trip.

Expansions, New Buildings, New Locations

Rexall Chemical Company and **El Paso Natural Gas Products Company,** which have launched a joint venture for production and sales of petrochemicals,, have awarded contracts of three million dollars for the design and construction of olefin and polyolefin plants in Odessa, Texas. The site is southeast of Odessa on the Farm-to-Market Highway, immediately east of the existing petrochemical complex.

Wilson Laboratories, Pharmaceutical Division of Wilson & Company, Inc., which produces hormones and glandular extracts, has announced a building and modernization program including a cooler-freezer building and three unloading docks, to provide direct access to receiving rooms of between 20° and 45° C.

A completely fireproof new building in Carlstadt, N. J., is now under construction for **Tevco, Inc.,** manufacturers of bulk nail enamels. Scheduled for completion in September, the building will house a laboratory and testing facilities.

A major expansion and modernization project has been completed at the **Armstrong Cork Company**'s Dunkirk, Indiana, glass container plant. Included in the new equipment is an electronically controlled glass melting furnace, the third melting furnace at the plant, and packing, mold-making, batch-handling, and cullet-handling systems.

Showing their pleasure at the Elizabeth, N. J., plant of International Flavors & Fragrances' winning of the third prize, the chemical section, in the safety award contest of the National Safety Council (left to right): Joseph I. Brennan, I.F.F. personnel manager; and Edwin M. Hall, plant superintendent, and Albert S. Paul, production manager, of the Elizabeth Flavor Division.

Fox Specialty Company, Inc., of Lowell, Mass., has equipped its plant with the machinery for injection-molded plastics.

A three-million-dollar plant is being constructed by **Yardley of London, Inc.,** in Totowa, N. J. It will house finishing and distributing facilities for Yardley products sold in the U.S.A. Occupation is expected in mid-1961.

Midwestern sales and service headquarters for the **Scientific and Process Instruments Division, Beckman Instruments, Inc.,** have been transferred from Chicago to expanded facilities at 7360 North Lincoln Ave., Lincolnwood 46, Illinois, which will also house the midwestern field office of Beckman's Systems and Spinco divisions.

The **Packaging Materials Division of Armstrong Cork Company** will relocate its New York City sales offices at 60 West 49th Street, Rockefeller Center, early in 1961.

Becco Chemical Division, Food Machinery and Chemical Corporation, has moved its administrative and sales headquarters to 161 East 42nd St., New York City; telephone, MUrray Hill 7-7400. For the time being, the company asks that orders be placed as in the past.

M.E.C. Changes Name

The Merchandising Executive's Club is now the Marketing Executives Club, which is thought to be more in keeping with the current business emphasis.

Those attending the Gordon Research Conference in Medicinal Chemistry, held at Colby Junior College in New London, New Hampshire, August 15-19. Irwin H. Slater, (Lilly Research Laboratories) chairman, is sixth from right, first row; Cornelius K. Cain, (McNeil Laboratories) vice-chairman, is fifth from the right in the first row; and our technical editor, Dr. Joseph Kalish, is sixth from the right in the fifth row.

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Lavender	DH-66
Cologne	DH-111
Cologne Bouquet	DH-117
Carnation	DH-131
Cedar Wood	DH-132

COLOGNES — PERFUMES

Cologne	DH-23
Bouquet	DH-28
Floral	DH-57
Lavender	DH-66
Lilac	DH-72
Floral Cologne	DH-83
French Oriental	DH-87
French Bouquet	DH-90
Cologne	DH-111
Jasmin Bouquet	DH-123
Mist Bouquet	DH-125
Mist Bouquet	DH-130
English Lavender	DH-133
Oriental Bouquet	DH-138
Sandalwood	DH-149

HOUSEHOLD & AIR FRESHENER SPRAYS

Cologne	DH-23
Siberian Pine	DH-29
Pine Wick Type	DH-30
Xmas Tree Pine	DH-31
Meadowsweet Bouquet	DH-34
Bouquet	DH-41
Lavender Bouquet	DH-45
Rose	DH-55
Orange Blossom	DH-59
New Mown Hay	DH-69
Spice	DH-74
Pine Virgin	DH-112
Cool Mint	DH-115
Spice Lavender Bouquet	DH-129
Carnation	DH-131
Medicinal	DH-139
Cool Pine	DH-144
Lavender Bouquet	DH-150

HAIR LACQUER PVP

Cologne	DH-23
Rose	DH-55
Orange Blossom	DH-59
Floral Bouquet	DH-79
Friench Oriental	DH-87
Oriental	DH-103
Cologne Bouquet	DH-117
Carnation	DH-131

SHAVE CREAMS, SHAMPOOS, SOAPS

Spice	DH-40
Lavender Bouquet	DH-44
Oriental Bouquet	DH-54
Rose	DH-55
Spicy Floral Bouquet	DH-56
Lilac	DH-72
Bay Rum	DH-89
Lemon	DH-94
Carnation	DH-131
English Lavender	DH-133
Lavender Bouquet	DH-150

PHARMACEUTICALS

Spice	DH-40
Medicinal	DH-70
Bay Rum	DH-89
Lemon	DH-94
Lilac Bouquet	DH-95
Jasmin Bouquet	DH-123
Floral Bouquet	DH-147

CREAMS, LOTIONS, COSMETICS

Cologne	DH-23
Spice	DH-40
Lavender Bouquet	DH-44
Oriental Bouquet	DH-54
Rose	DH-55
Orange Blossom	DH-59
Lavender	DH-66
Floral Bouquet	DH-76
Lemon	DH-94
Lily Muguet	DH-102
Lavender	DH-119
Carnation	DH-131
Cologne	DH-142
Floral Bouquet	DH-147

MOTH & INSECT SPRAYS

Siberian Pine	DH-29
Cedar Balsam Pine	DH-33
Violet	DH-42
Spicy Mint	DH-50
New Mown Hay	DH-69
Spice	DH-74
Para Odor	DH-122
Jasmin Bouquet	DH-123
Cedar	DH-127
Cedar Wood	DH-132
English Lavender	DH-133
Lavender Bouquet	DH-150

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Robert P. Scherer

Robert P. Scherer, founder and until his death president of R. P. Scherer Corp., died July 27 in Ford Hospital, Detroit, Mich. He was 53.

Mr. Scherer is well known for his development of the first rotary die process for producing soft gelatin capsules. He founded his company in 1933, first calling it the Gelatin Products Company. It is now the world's largest manufacturer of vitamin capsules.

In 1958, Mr. Scherer's company introduced an instrument which makes hypodermic injections without a needle, by a jet propulsion technique. It is capable of inoculating 5,000 persons an hour.

W. Lansing Chapman

W. Lansing Chapman, a publisher of *Medical Economics*, died August 17 in Grace-New Haven Hospital, New Haven, Conn., after a short illness. He was 72 years old.

Mr. Chapman founded the magazine in 1923, in collaboration with Dr. H. Sheridan Baketel, to deal with the economic side of the physician's life. At his death he was chairman of the board and chief executive officer of Medical Economics, Inc., which also publishes *Physicians' Desk Reference*, *RISS*, for medical students, and *Medical Marketing*. He was also president of Nightingale Press, Inc., publisher of *RN*.

Albert Verley

Albert Verley, founder and head of Albert Verley & Company, died recently in France.

Mr. Verley established his factory in 1917 at I'lle Saint Denis, and directed it until his death—in collaboration with his son after 1940.

A perfume chemist, Mr. Verley is known for several innovations, among them the industrial preparation of vanillin using ozone, in collaboration with Otto; the perfection of the distillation of rose oil, with Batzouroff; and the preparation of undecalcetone.

Mrs. Stephen L. Mayham

Celeste Mayham, wife of Stephen Mayham, who is executive secretary of the Toilet Goods Association, died August 29, at Danville, Vt.

Interment was in Schoharie, New York, on September 1.

Howard T. Jensen

Howard T. Jensen, retired vice-president and general manager of Eli Lilly and Company (Canada) Limited, died August 3, in Glendale, Calif. He was 74 years old.

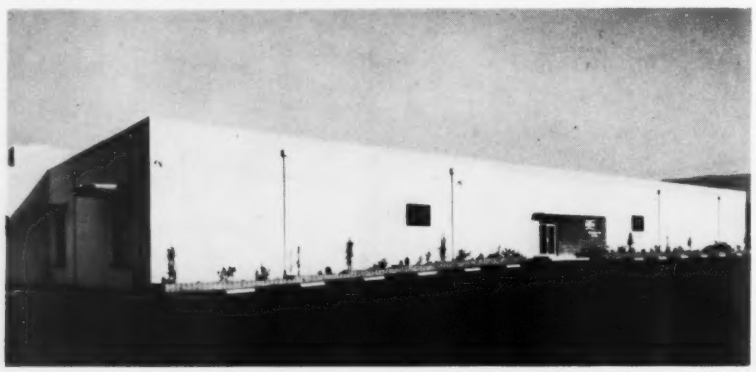
Mr. Jensen began with Lilly as a salesman in 1911, becoming manager of the Pacific Coast sales division in 1924, and subsequently served in the Far East, until 1938, when he began the management of the Canada operation.

Raymond E. Horn

Raymond E. Horn, retired president of Abbott Laboratories, died July 10, at Children's Hospital, San Francisco, Calif. He was 73.

Mr. Horn joined Abbott in 1922, when Abbott acquired the Dermatological Research Laboratories of Philadelphia, of which he had been sales manager. In 1937 he was elected vice-president and director of sales, and ten years later, president and general manager. He retired in 1950.

New manufacturing plant, which can supply overnight shipment to customers on the West Coast, opened at 725 South Kellogg Street, Goleta, California, by the Imco Container Corporation, for manufacturing polyetylene containers. Imco, a Division of the Rexall Drug and Chemical Company, now has six plants in the U.S.A.



Francois Camilli

Francois Camilli, president and general director of Camilli, Albert & Laloue S.A., died July 16 at his home in Grasse, France, after a long illness. He was 66 years old.

FRANCOIS CAMILLI

Mr. Camilli had visited the United States on several occasions, and in 1950 he established the American subsidiary, Camilli, Albert & Laloue, Inc.

Mr. Camilli was a Chevalier of the Legion of Honour, president of Les Cultures Florales Mediterraneennes, charter member of the Comite Consultatif du Groupement Interprofessionnel des Fleurs et Plantes Aromatiques (G.I.F.P.A.), and honorary president of the Amicale des Corses de Grasse.

Mr. Camilli is survived by his widow, and his son Dominic. Mrs. Camilli has joined the board of the Grasse concern as a director, and R. M. Smith, a director for 22 years, has been appointed president and managing director.

Ross LeB. Daggett

Ross LeB. Daggett, vice-president of George Lueders & Company, Inc., died of a heart attack on July 31.

Samuel W. Menefee, Jr.

Samuel W. Menefee, Jr., manager of the package development and merchandising department, Packaging Materials Division, Armstrong Cork Company, died July 17 of a heart attack, at the Meadia Heights County Club in Lancaster, Penna., where he was playing golf. He was 53 years old.

Mr. Menefee joined Armstrong in 1938 as assistant manager, druggists supply section, and later developed the package development and merchandising department.

advertisement

SPEAKING FROM SPAIN

Carlos Susanna Gregory is a graduate of the University of Barcelona. Since 1951 he has been employed with cosmetic firms and is now manager of production with Synox Laboratorium. He is present Secretary of the Society of Cosmetic Chemists of Spain.

Glycerine versatility

IN DEODORANTS... ANTIPERSPIRANTS... MOUTH WASHES EYE LOTIONS...TOILET WATERS...NAIL LACQUER REMOVERS

The extensive range of useful glycerine properties makes it a desirable ingredient for the cosmetic chemist and the pharmacist in many formulations. Its function may depend on the chemical and physical characteristics of the vehicle, or on the softening emollient action it is capable of exercising on the cosmetic film brought into contact with the skin.

Many papers have been published on the cosmetic applications of glycerine[1, 2, 3, 4, 5, 6, 7, 8] the detailed description of which we will omit here. In this article we will attempt to cover only the important and versatile role which glycerine can play in formulations of deodorants–antiperspirants, mouth washes, eye lotions, toilet waters and nail lacquer removers, following mainly the European criterion.

In order to clarify the subject somewhat, we have outlined a formulation scheme on the products to be reviewed, with their usual forms of use, the chief characteristics required, and the typical ingredients (see table, pages 2-3).

DEODORANTS – ANTIPERSPIRANTS

Within this line of products, three different presentation forms are popular, in each of which we will examine the functions and advantages of glycerine.

a) Sticks: The high alcohol content of these solidified products, of the type of an alcohol-stearate gel, presents the problem of controlling its easy volatility. This can be achieved in some degree by addition of glycerine, a polyalcohol with very low volatility. Such an addition of glycerine also has a plasticizing action which protects the stick from breakage, and, as a non-volatile solvent, glycerine prevents the settling of sodium stearate to the skin.[9] Another effect, also due to the addition of glycerine, is the maintenance of an adequate degree of transparency of the stick.[10] The moistening effect of glycerine prevents the too rapid drying of the deodorant on the skin, giving to the stick a smooth-touch and favoring its application.[8, 11] It is normally advisable to employ no more than 5% of glycerine, since it may excessively retard the necessary evaporation rate in use, reducing thereby the refreshing effect of the product.

The function of glycerine in controlling the evaporation also prevents the possible crystalization of the astringent salt, which if it were to happen, would create difficult application problems.

Another interesting effect is that glycerine can act as solvent for the gelation agent (or solidification agent), permitting increased concentration. This makes possible an elevation of the melting point of the stick, an important consideration in the warm countries.

b) Creams and Lotions (solid and liquid emulsions): The so-called vanishing creams constitute the type with most widespread acceptance (O/W emulsions). The frequent inclusion of astringent salts and bactericides into such products creates some additional problems, which must be taken into account when formulating said products: in the first place the presence of astringent salts, in many instances characterized by a strong acid hydrolysis, prohibits the use of usual emulsifiers of the soap type (TEA stearate, potassium stearate, etc.) and makes necessary the use of emulsifiers stable to acids (for instance: sorbitan esters and polyoxyethylene sorbitan esters, the acid-stable glyceryl mono-stearate, some anionics, etc.). In the second case, the presence of germicidal agents (especially the phenolic types) produces inactivation phenomena in the presence of nonionic emulsifiers.[12, 13, 14, 15, 16, 17]

In spite of inclusion of astringent salts and germicidal agents, these creams continue to exhibit the usual characteristics and difficulties of the vanishing creams: ease of water evaporation from the external phase of emulsion and consequent drying, consistency alterations, possible shrinkage of product from the walls of the container and sometimes appearance of crusts on the surface of product. These difficulties must be overcome with a moisturizing agent such as glycerine. To quote deNavarre,[21] introduction of glycerine in O/W emulsions gives a better fluidity (especially in liquid emulsions) and plasticity than addition of other humectants, so that glycerine seems to favor formation of O/W emulsions, contrary to propylene glycol, which seems to favor formation of W/O emulsions.[22] As to the influence of glycerine in counteracting the hardening of an O/W emulsion, it has been found[23] that the optimum concentrations are 7.5% for glycerine, 15% for sorbitol and 10-12% for proplyene glycol, respectively. About the question of influence of the diverse polyols on viscosity of an emulsion, the opinions are divergent.[2, 18, 21, 23, 24, 25] In our own tests we have found that association and blending of glycerine with equivalent quantities of polyethylene glycol 300 or 400 still improved the plasticizing properties and spreading of a vanishing cream.

Again, the acceptance of glycerine as humectant is shown by the fact, that Wells[8] maintains even that it can act as emulsifying adjutant and improve the stability (especially in O/W emulsions with polyoxyethylene alkyl ethers). It has been mentioned as another function of glycerine, that, if the emulsion breaks or tends to invert, the glycerine favors the phase inversion, maintaining homogeneous and plastic the resulting new film.

A further effect of its moisturizing action,[26] and not the least in importance, is its softening emollient action on the dry skin, extensively proved by the well known work of Blank.[27] Moreover, glycerine has the subsidiary action of preventing the "rolling" due to the poor adhesion of the film to the skin. Pepper[28] also mentions the value of incorporating it into the vanishing creams assigned to cold countries, since it prevents the breaking of the emulsion, thanks to its ability to lower freezing points.

Product	Principal use	Required characteristics
Deodorants-Antiperspirants	Mask or destroy the secretion odour, or prevent it.	Good consistency, ease of spreading, and such form of package that prevents evaporation. Must not grease or soil clothes.
		Ease of spreading, in addition to its specific properties.
Mouth Washes	Oral hygiene, cleaning, refreshing and/or odour masking action.	Ease of use and efficacy.
Eye Lotions	Clean, stimulate, refresh, soften the membranes of the eyes.	Must not irritate, must be stable, neutral pH, isotonic with lachrymal secretion, and clearness.
Toilet Waters and Stick Colognes	Perfume the body.	Ease of use and pleasant appearance.
Nail Lacquer Removers	Dissolve lacquers.	Careful package preventing evaporation. Must not dry the nails too much.

It can be mentioned too[29] that glycerine has been recommended as a solvent for the new bactericide based deodorants (chlorinated phenol derivatives).

As seems apparent from all this, glycerine supplies in a balanced manner all the properties (hygroscopicity, humectant range, viscosity, low viscosity index, good compatability, low volatility, lack of toxicity, good colour, taste and odour, lack of corrosive action, low freezing point, required by Griffin[18] of ideal humectant agents.

We believe that the selection of glycerine as moistening agent for deodorant-antiperspirant creams and lotions has so been justified.

c) Liquids: Such aqueous or aqueous-alcoholic solutions require addition of glycerine for its moisturizing, emollient action. Its spreading action favours good adhesion and wetting of the skin. Furthermore, when it is included in sufficient quantity, it is able to impart an adequate body to the lotion or to enhance the effects of other thickening agents.

MOUTH WASHES

Inclusion of glycerine in such preparations usually has various missions: it increases vehicle viscosity, exercises a moisturizing action, acts as solvent and diluent for flavoring materials, and gives a sweet flavor permitting sometimes a lower concentration of other sweetening agents. Wells[8] mentions also its utility as "throat conditioner," and its use in lozenges for this purpose is well established.

EYE LOTIONS

Often these lotions simply consist of a physiological sal solution; in other cases 0.5% methyl cellulose solutions are used, which give an inert, viscous colloid of good tolerance not causing allergic reactions. Addition of up to 10% glycerine can be of interest for its isotonic effect and spreading action. It is a constituent of proprietary products for such use.

TOILET WATERS

Introduction of a low percentage of glycerine into toilet waters increases or maintains solubility especially when the product is subject to evaporation.

Another reason for use of glycerine is to retard perfume volatilization, to fix it somewhat, thanks to its solvent properties and low vapour pressure. Moreover, it must be borne in mind that, due to its compatability, it does not produce any alteration of perfume.

NAIL LACQUER REMOVER

Addition of glycerine to these preparations is indicated by its emollient action, imparting unctuosity without oily character, a very important feature. This lubricating effect partially compensates for the unpleasant dryness of the skin produced by strong solvents, the basis of most of these products.

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Vehicle	Typical components		
ick, solidified alcohol gel.	solidifying agent 5-10% glycerine 0-5% alcohol, perfume qs.	astringent salts: Al-salts 15-20 (sodium stearate) germicides: G-11 (0.25%), anobial (0.5%), Chlorophyll (0.05%), quaternary ammonium (2.0%)	
eam O/W vanishing acid type. Also ions, liquid emulsions.	Oil phase 15-20% typical ingredients germicides	Aqueous phase 85-80% Glycerine 5-15% astringent 15-20% Fabric-damage inhibitor 5-10%	Emulsifier acid-stable nonionic (incompat.)
quid, aqueous or aqueous-alcoholic olutions.	germicide agent astringent agent 15-20% glycerine 3-15%		
queous or aqueous alcoholic solu-ons. Concentrated liquids.	antiseptic and astringent substances glycerine 0-5% flavoring material		
uffered and isotonic aqueous lutions.	weak antiseptic, astringent agents, vasoconstrictors glycerine 0-10%		
quids.	alcohol, perfume, water q.s. glycerine 0-5%		
tick.	(as for deodorant sticks)		
olvent blends.	complex mixture solvents 98% glycerine 0-2%		

NOTE: Inclusion of formulations in this series of articles does not constitute a recommendation by G.P.A.—nor warrant that they are free from patent or other legal restrictions.

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SOOTHING WORDS

...that give sales a lift

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ADVANTAGES THAT COME WITH . . .
Glycerine

SPEAKING FROM SPAIN

Carlos Susanna Gregory is a graduate of the University of Barcelona. Since 1951 he has been employed with cosmetic firms and is now manager of production with Synox Laboratorium. He is present Secretary of the Society of Cosmetic Chemists of Spain.

Glycerine versatility

IN DEODORANTS... ANTIPERSPIRANTS... MOUTH WASHES EYE LOTIONS...TOILET WATERS...NAIL LACQUER REMOVERS

The extensive range of useful glycerine properties makes it a desirable ingredient for the cosmetic chemist and the pharmacist in many formulations. Its function may depend on the chemical and physical characteristics of the vehicle, or on the softening emollient action it is capable of exercising on the cosmetic film brought into contact with the skin.

Many papers have been published on the cosmetic applications of glycerine[1, 2, 3, 4, 5, 6, 7, 8] the detailed description of which we will omit here. In this article we will attempt to cover only the important and versatile role which glycerine can play in formulations of deodorants–antiperspirants, mouth washes, eye lotions, toilet waters and nail lacquer removers, following mainly the European criterion.

In order to clarify the subject somewhat, we have outlined a formulation scheme on the products to be reviewed, with their usual forms of use, the chief characteristics required, and the typical ingredients (see table, pages 2-3).

DEODORANTS – ANTIPERSPIRANTS

Within this line of products, three different presentation forms are popular, in each of which we will examine the functions and advantages of glycerine.

a) Sticks: The high alcohol content of these solidified products, of the type of an alcohol-stearate gel, presents the problem of controlling its easy volatility. This can be achieved in some degree by addition of glycerine, a polyalcohol with very low volatility. Such an addition of glycerine also has a plasticizing action which protects the stick from breakage, and, as a non-volatile solvent, glycerine prevents the settling of sodium stearate to the skin.[9] Another effect, also due to the addition of glycerine, is the maintenance of an adequate degree of transparency of the stick.[10] The moistening effect of glycerine prevents the too rapid drying of the deodorant on the skin, giving to the stick a smooth-touch and favoring its application.[8, 11] It is normally advisable to employ no more than 5% of glycerine, since it may excessively retard the necessary evaporation rate in use, reducing thereby the refreshing effect of the product.

The function of glycerine in controlling the evaporation also prevents the possible crystalization of the astringent salt, which if it were to happen, would create difficult application problems.

Another interesting effect is that glycerine can act as solvent for the gelation agent (or solidification agent), permitting increased concentration. This makes possible an elevation of the melting point of the stick, an important consideration in the warm countries.

b) Creams and Lotions (solid and liquid emulsions): The so-called vanishing creams constitute the type with most widespread acceptance (O/W emulsions). The frequent inclusion of astringent salts and bactericides into such products creates some additional problems, which must be taken into account when formulating said products: in the first place the presence of astringent salts, in many instances characterized by a strong acid hydrolysis, prohibits the use of usual emulsifiers of the soap type (TEA stearate, potassium stearate, etc.) and makes necessary the use of emulsifiers stable to acids (for instance: sorbitan esters and polyoxyethylene sorbitan esters, the acid-stable glyceryl mono-stearate, some anionics, etc.). In the second case, the presence of germicidal agents (especially the phenolic types) produces inactivation phenomena in the presence of nonionic emulsifiers.[12, 13, 14, 15, 16, 17]

In spite of inclusion of astringent salts and germicidal agents, these creams continue to exhibit the usual characteristics and difficulties of the vanishing creams: ease of water evaporation from the external phase of emulsion and consequent drying, consistency alterations, possible shrinkage of product from the walls of the container and sometimes appearance of crusts on the surface of product. These difficulties must be overcome with a moisturizing agent such as glycerine. To quote deNavarre,[21] introduction of glycerine in O/W emulsions gives a better fluidity (especially in liquid emulsions) and plasticity than addition of other humectants, so that glycerine seems to favor formation of O/W emulsions, contrary to propylene glycol, which seems to favor formation of W/O emulsions.[22] As to the influence of glycerine in counteracting the hardening of an O/W emulsion, it has been found[23] that the optimum concentrations are 7.5% for glycerine, 15% for sorbitol and 10-12% for proplyene glycol, respectively. About the question of influence of the diverse polyols on viscosity of an emulsion, the opinions are divergent.[2, 18, 21, 23, 24, 25] In our own tests we have found that association and blending of glycerine with equivalent quantities of polyethylene glycol 300 or 400 still improved the plasticizing properties and spreading of a vanishing cream.

Again, the acceptance of glycerine as humectant is shown by the fact, that Wells[8] maintains even that it can act as emulsifying adjutant and improve the stability (especially in O/W emulsions with polyoxyethylene alkyl ethers). It has been mentioned as another function of glycerine, that, if the emulsion breaks or tends to invert, the glycerine favors the phase inversion, maintaining homogeneous and plastic the resulting new film.

A further effect of its moisturizing action,[26] and not the least in importance, is its softening emollient action on the dry skin, extensively proved by the well known work of Blank.[27] Moreover, glycerine has the subsidiary action of preventing the "rolling" due to the poor adhesion of the film to the skin. Pepper[28] also mentions the value of incorporating it into the vanishing creams assigned to cold countries, since it prevents the breaking of the emulsion, thanks to its ability to lower freezing points.

Product	Principal use	Required characteristics
Deodorants-Antiperspirants	Mask or destroy the secretion odour, or prevent it.	Good consistency, ease of spreading, and such form of package that prevents evaporation. Must not grease or soil clothes.
		Ease of spreading, in addition to its specific properties.
Mouth Washes	Oral hygiene, cleaning, refreshing and/or odour masking action.	Ease of use and efficacy.
Eye Lotions	Clean, stimulate, refresh, soften the membranes of the eyes.	Must not irritate, must be stable, neutral pH, isotonic with lachrymal secretion, and clearness.
Toilet Waters and Stick Colognes	Perfume the body.	Ease of use and pleasant appearance.
Nail Lacquer Removers	Dissolve lacquers.	Careful package preventing evaporation. Must not dry the nails too much.

It can be mentioned too[29] that glycerine has been recommended as a solvent for the new bactericide based deodorants (chlorinated phenol derivatives).

As seems apparent from all this, glycerine supplies in a balanced manner all the properties (hygroscopicity, humectant range, viscosity, low viscosity index, good compatability, low volatility, lack of toxicity, good colour, taste and odour, lack of corrosive action, low freezing point, required by Griffin[18] of ideal humectant agents.

We believe that the selection of glycerine as moistening agent for deodorant-antiperspirant creams and lotions has so been justified.

c) Liquids: Such aqueous or aqueous-alcoholic solutions require addition of glycerine for its moisturizing, emollient action. Its spreading action favours good adhesion and wetting of the skin. Furthermore, when it is included in sufficient quantity, it is able to impart an adequate body to the lotion or to enhance the effects of other thickening agents.

MOUTH WASHES

Inclusion of glycerine in such preparations usually has various missions: it increases vehicle viscosity, exercises a moisturizing action, acts as solvent and diluent for flavoring materials, and gives a sweet flavor permitting sometimes a lower concentration of other sweetening agents. Wells[8] mentions also its utility as "throat conditioner," and its use in lozenges for this purpose is well established.

EYE LOTIONS

Often these lotions simply consist of a physiological sal solution; in other cases 0.5% methyl cellulose solutions are used, which give an inert, viscous colloid of good tolerance not causing allergic reactions. Addition of up to 10% glycerine can be of interest for its isotonic effect and spreading action. It is a constituent of proprietary products for such use.

TOILET WATERS

Introduction of a low percentage of glycerine into toilet waters increases or maintains solubility especially when the product is subject to evaporation.

Another reason for use of glycerine is to retard perfume volatilization, to fix it somewhat, thanks to its solvent properties and low vapour pressure. Moreover, it must be borne in mind that, due to its compatability, it does not produce any alteration of perfume.

NAIL LACQUER REMOVER

Addition of glycerine to these preparations is indicated by its emollient action, imparting unctuosity without oily character, a very important feature. This lubricating effect partially compensates for the unpleasant dryness of the skin produced by strong solvents, the basis of most of these products.

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ADVANTAGES THAT COME WITH . . .

Glycerine

Management Forum

BY FRANCIS CHILSON
INDUSTRIAL CONSULTANT

Management Ethics

Some time ago I did a bit about white collar crooks in which I stated that the take of professional thieves is but petty cash when compared with the peculations of people holding responsibile, white collar jobs —many of them upper-echelon executives. Although a book has since been published dealing with this sorry state of affairs, I was caustically criticized by several of my white collar friends on the ground that I was belittling the management group as a whole. I hope my critical friends have been reading the newspapers lately about the forced resignation of the president of the Chrysler Corporation and several of his executive associates because of their financial interests in various suppliers of the corporation. Actually these men didn't steal from the corporation in the literal sense of the word; they are accused of having used their influence as company officials to the end that firms in which they had substantial financial interests received a substantial share of the Chrysler business. And the influence of a company president can be pretty powerful!

These men were money hungry; greedy; and their concept of ethics could hardly be lower. But in a larger sense what they did was no worse than grabbing huge stock options, huge pensions, bonuses, and unlimited expense accounts. What they did was no worse in its effect on corporate profits and integrity than giving plush jobs to incompetent relatives, fraternity brothers and buddies. Parasites all.

If we can't look to company presidents for high ethical standards and uncompromising moral leadership, what hope is there for the continuance of the capitalist—or as I prefer to call it—the distributive system? In my view the presidency of a company is a position of exceptional responsibility and exceptional trust. A company president is a trustee. He is a trustee for the public, which is entitled to purchase goods and services of the highest possible quality at reasonable prices. He is a trustee for all employees and stockholders and is charged with the responsibility of maintaining the corporation in sound financial condition, thus assuring its perpetuation. If a company president—as so many of them do—regards his job as a means of "getting while the getting is good," how can he expect his subordinates to have any other attitude? How can he expect the trade unions to believe in his motives? How can he expect the governmental regulatory bodies to trust him?

I think the American Management Association should draw up a code of ethics for the guidance of company presidents and administrative officials which should in effect be the Hippocratic Oath of Management. Among its tenets should be the following:

"I shall not purchase supplies or services from any organization in which I, my family or my personal friends have substantial financial investments, unless I can prove that such goods and services cannot be obtained in similar quality, quantity and prices elsewhere, and, in such instances, the transaction in all particulars shall be disclosed to my board of directors, my stockholders and my employees.

"I shall not borrow money or purchase securities for myself, family or friends from any banking or financial institution with which my corporation does business.

"I shall not accept any rewards for my services other than my salary unless such rewards or benefits have previously been disclosed to my stockholders in simple, non-legal language and approved by a majority of them.

"I shall not employ or cause to be employed directly or indirectly any member of my immediate family, any relative, friend or acquaintance unless such person or persons possess training and experience which cannot be found in persons unknown to me personally, and I agree that when the employment of

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a person or persons known to me is unavoidable, to submit to—and abide by—the judgment of outside expert counsel all questions of competence after a trial employment period of six months.

"I shall not permit employees of the corporation to serve on my board of directors unless a means of secret balloting is in existence and I agree not to institute retaliatory measures against board members who may openly oppose any of my plans or purposes.

"I shall not permit the use of any manufacturing process or procedure which pollutes the air or ground water sources. I shall not permit operating premises to become unsightly in the eyes of the community. I shall tolerate no operating practice or structure which has the effect of depreciating surrounding property values.

"I shall not excessively entertain or otherwise influence government officials in order to obtain contracts, nor shall I ever permit bribery in the form of gifts, entertainment or money to federal state or local officials of any kind whatever.

"I shall not permit any gifts of money to political parties except on a nonpartisan basis and then only if the amount of the gifts is immediately made public.

"I shall not permit any employee to participate in any political campaign as a representative of the corporation.

"I shall utilize the best professional means of securing and protecting corporate assets of every kind against internal as well as external corruption.

"I shall not permit my public relations and advertising people to make any statement oral or written concerning the corporation or any of its products which they know to be false or incapable of proof, nor shall I permit them by implication or otherwise to suggest that the corporation's products possess merits or properties they do not in fact possess.

"I shall not enter into any secret agreements concerning licenses, prices or practices which I know to be illegal in fact or contrary to the public interest in effect.

"I shall never employ industrial espionage organizations to obtain secret information concerning competitors' products, processes or plans, nor shall I permit the employment of competitors' personnel when the actual and only purpose of such employment is to obtain competitors' confidential information.

"I shall never divulge in advance of general publication confidential information concerning corporate activities, discoveries or acquisitions, to my family, relatives or friends, when the effect of publication is certain to increase the value of the corporation's stock substantially.

"I shall do everything possible to maintain the management of my corporation in a virile, productive condition. I shall be ever alert to detect and eliminate all sychophants, subtle flatterers, 'yes-men' and phonies.

"I shall as soon as possible select my own successor and I shall see to it that competent management succession is provided for in all areas of management, and that intensive management training is provided for the entire management group.

"I shall at all times strive to be honest, fair and firm in my dealings with my associates, employees, stockholders and the public in general.

"I shall make adequate means available for product research. I shall also establish means for the continuing study of changing public conditions and tastes. I shall make provision for the study of domestic and foreign politics and economics, to the end that my corporation will always be in a vigorous, alert and viable condition.

The Income Tax and Karl Marx

Last month I raised the philosophic question as to the size of the reward any entrepreneur or inventor should get from society. According to Karl Marx it was inevitable that in a capitalistic society the rich would always get richer and the poor poorer. Marx never visualized the growth of a large middle glass as the direct result of capitalistic practices. Marx never visualized the income tax as a redistributive factor. He never visualized the inheritance tax as a means by which the fortunes of the rich would be funneled back through governmental channels to the poor and be distributed to them in the form of a great variety of services.

Many men—particularly in the electronics field—have become millionaires since the war. But only on paper. The stock they own may have represented an initial investment of five thousand dollars ten years ago and a value now of five million, but when they start to sell their stock the distributive process begins: twenty-five per cent of the increase in value is collected by Uncle Sam as capital gains tax. Should the lucky guy give away some of his stock to his family, he gets hooked for gift taxes of an amount proportional to the size of the gift. When he kicks the bucket Uncle Sam strips his estate of a whacking big inheritance tax. And while he is alive and enjoying his ulcers Uncle Sam clips his dividend income twice. First at source through the corporate income tax of 52 per cent of corporate earnings. Secondly, when he gets his dividends, he is clipped again at an ever ascending surtax rate based upon the amount of his net taxable income. Time was when a man with a substantial estate could set up a nonprofit foundation and transfer his holdings to it. Then he could set up his heirs as salaried officers in perpetuity of the foundation, and thus, they could get the benefit of his estate in full—or almost so. But Uncle Sam now looks upon all new nonprofit foundations with a jaundiced and very sharp eye. If all the brainpower expended annually in this country upon devising new ways of dodging taxes was focused on constructive problems, we'd be not only decades ahead of Russia in all endeavors, but of all the world as well!

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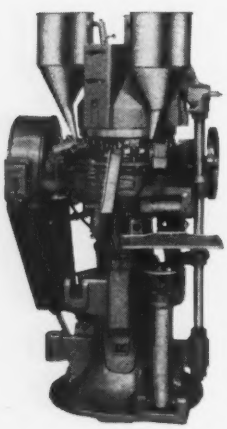

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For complete technical data on these multi-layer tabletting presses, write for Data Sheet 106. Be sure to consult Stokes Engineering Advisory Service for complete technical assistance in designing parts, punches and dies, or complete production facilities.

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None of these things did Marx forsee. He did not forsee that the people he cursed as capitalists would one day realize that people—even employees—are customers. The more they earn, the more they spend; the more they spend, the more business for all. Marx never visualized laborers riding to work in glossy vehicles beside which the glossiest coach of his day was but a paltry, uncomfortable contrivance. Marx failed because he didn't understand human nature. Communism will fail for the same reason.

In spite of the baleful warnings of the politicians this country will never become communistic. Communism can never succeed in a country in which the population is predominantly middle class. We do not need to worry about Communism in this country; we do need to worry about the quality of our politicians.

American Slums

We are working like hell to eliminate slums from our cities, and ten times as fast as we eliminate slums from cities we re-create them along our highways. With the exception of a few miles of turnpikes and parkways from which billboards and other trash have been excluded, our highways have become eyesores as ugly as any slums I have ever seen. Our roads are a succession of billboards, gas stations, parking lots, car dumps, trailers, diners, motels, beaneries, neon lights, junk eateries, drive-ins—crap and corruption. Why have we permitted this? Why?

During the past fifteen years it has not been possible for me to travel much by road. My traveling has been done by air mainly, and also by train, usually at night. So I saw little of the degree to which our once beautiful country has been desecrated. And apparently nobody gives a damn, else the condition couldn't have become as bad as it is. Recently I combined a vacation with a business trip and did 2,000 miles by car embracing part of New York, Pennsylvania, Maryland and Virginia. During all this long trip I saw very little of the countryside. It was concealed from me by a continuous screen of crummy little ranch-type houses, crappy looking motels and all the formless, shapeless, colorless noisome litter I have outlined above. A trip through middle eastern America is an ordeal—not a pleasure. And the litter of tourists and their blight of brats are everywhere. One wonders at the moronic mentality of parents who cart coveys of tired, bored bawling brats under school age through national monuments, which can have no significance to them, and in some of which, they are in fact a profanation.

Along Route 1 south of Richmond there are 105 gaudy gas stations in one stretch of twenty-two miles! How can such a desecration have occurred? Is this the land so many southern boys valiantly died for? They must surely be turning in their graves.

Let's start to do something about this right now. State laws should be passed limiting the number of gas stations to one every five miles of road. The color, design, layout and lighting of every gas station should be in accord with conservative architectural standards.

Billboards and signs of all sorts should be limited in number per mile and limited in size. I suggest that all signs and billboards larger than two square feet be subjected to an annual tax of one hundred dollars per square foot per annum with the maximum size limited to twelve square feet. Suggest this to your congressman, your senators and state representatives.

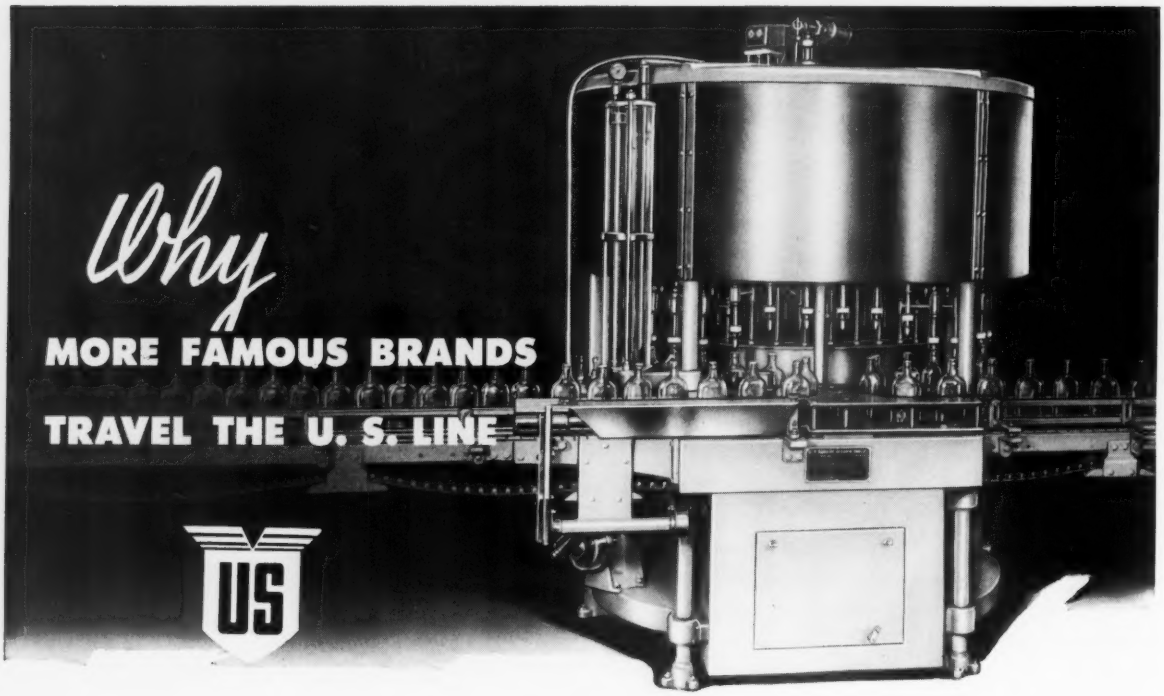
Why should any American be offended by a welter of billboards? The parkways and turnpikes have banned billboards to a certain distance from their rights-of-way. But the billboard people are responding by making billboards four times as big as they were, thus screening out a lot more countryside than they did before. This is an intrusion upon our privacy. I hereby curse and damn every cosmetic and pharmaceutical company that uses billboards or road signs as a means of advertising.

Airhouse Storage

Airshelters, Inc., of Akron, Ohio, is manufacturing a "building" that consists entirely of nylon cord covered with weather-resistant vinyl. A small blower supplies the air to support the building, which has no columns, beams, or trusses, and it is said to be capable of withstanding winds of as high as 75 miles per hour.

The airhouse shown in the photograph below is being used by Baxter Laboratories, Inc., for extra warehouse space that was needed quickly and economically. This 80 x 40-foot airhouse was erected in 45 minutes and provides 2,800 feet of space for storage of supplies at Baxter's Morton Grove, Ill., plant.

Aside from the vinyl-covered nylon fabric and the blower, the airhouse includes a frame for the entrance, and stakes, which hold the edges in place at the base.



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MODEL B-49 STRAIGHTLINE VACUUM FILLER. For liquids and semi-liquids. Fills 4 to 9 containers simultaneously; up to 50 small containers p.m. Lever engages and disengages filling stems, otherwise operation is automatic. Adjustable for all container heights up to 14", miniature and standard bottle finishes, gallon F-style cans, wide mouth jars. Stainless steel is standard; plastic on order. Discharge conveyor optional. Write for "Bulletin B-49."

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THE U. S. CONTAINER FEEDER feeds containers to the conveyor faster, easier, at a steadier pace and a lot cheaper! Just dump 'em on, and let the Feeder take charge. Pays for itself quickly and reduces costs permanently while you get automatic efficiency. Write at once for a "Container Feeder Bulletin."

Coder-Printer Using Solid Ink

High-speed coding and printing without the mess of fluid ink are possible with any one of a new series of machines introduced by Thomas Engineering Company, 9257 N. Laramie, Skokie, Ill.

The Teko Model 100 Series of coders and printers are designed for attachment to packaging machines or powered conveyors of all types. They synchronize with the action of the parent machines, printing on boxes, cartons, craft paper, and other porous or semi-porous surfaces.

Inking is done by a roll of Porelon solid ink. Porelon is the trademark of S. C. Johnson & Sons, Inc., for its micro-porous, micro-reticulated plastics. The roller, a self-contained inker, replaces fluid inks, solvents, fountains, felts, and the maintenance connected with them; it cannot drip, evaporate, or gum up; when exhausted, it can be changed in less than ten seconds.

The Teko Coders are compact, with anti-friction bearings guaranteeing rugged, trouble-free performance. The machine measures 7 x 4⅜ inches, with an extended drive shaft 8 inches long. Printing head diameters of 6, 8, and 10 inches are available, to accommodate various pitch distances in the feeding of packages through conveyor systems.

The coders print, from any position, onto any side of the package, up to 250,000 quick-drying impressions with a single Porelon roll.

Micro-Mill Mixer

A new Eppenbach Micro-Mill, designed especially to disintegrate large quantities of slurries and bacterial cells, spores, molds, yeast, and pollen granules, is available from Gifford-Wood Company, Hudson, N. Y.

The mixer possesses an internal recirculating pipe for establishing anaerobic conditions, and a needle valve in the hopper cover, which enables the system to be blanketed with a suitable gas to minimize oxidation.

Magnetic and Electronic Alarm Rotameters

The Instrument Division of Schutte and Koerting Company, Cornwells Heights, Bucks County, Penna., offers two types of magnetic and electronic instruments for accurately measuring fluid rates of flow, and warning of abnormal flow rates. Both types activate a warning light or alarm device, and will start or stop a pump, motor, or control unit. They provide high accuracy for critical applications.

The Magnetic Alarm Rotameter uses a float extension rod with an encapsulated magnet. One or two sensing devices are mounted on the extension-rod housing tube. Each device contains a magnet and a hermetically sealed, vibration-proof, reed alarm switch that activates a high or low flow alarm, or start-stop switch. Reset is automatic.

The Electronic Alarm Rotameter does not require an extension float or housing. It uses an electric coil outside the metering tube to detect the position of the float. It can be set for high or low flow alarm.

A bulletin describing the two instruments is available from the division's M-S Department.

New Marking Machines, Gravity Fillers

Popper & Sons, Inc., 300 Park Ave. South, N. Y. 10, N. Y. has introduced two newly developed marking machines.

Rejafix Model El/T is a fully automatic can imprinter, which will print codes, color shades, and the like on pre-lithographed metal cans, allowing for precise registration of print. Diameters can be as large as 4½ inches. Speed of printing can be as much as 1500 per hour.

Rekafix Model 555-II is a fully automatic rotary printer for cylinderical objects as large as 1¼ inches in diameter, with a speed of as much as 10,000 per hour.

Popper has also introduced low-cost gravity and volumetric fillers in a new line, Perfektum Economy Fillers, with two types of equipment. The GF Series are gravity fillers for filling liquids to a desired level, and are available with vacuum takeoff.

The Volufil Series consists of piston models for accurate filling by volume. These are also available with glass contact parts for corrosion liquids.

Micro-Printweigh Scale

A Micro-Printweigh electronic bench scale that extends the advantages of printed weight data to lower-capacity, higher-sensitivity scales has been announced by Toledo Scale Corporation, Toledo 12, Ohio.

The unit, Model 9445, is equipped with a 400 Series Printweigh with dial capacities of 500 x ½ gram, 1000 x 1 gram, 2000 x 2 grams, or 2 pounds x 0.002 pound graduations. All available standard Printweigh accessories may be used with the unit. Its accuracy is to plus or minus 0.1 per cent of the dial capacity, and the indicator will rest within three seconds from the time the load is applied. Printing requires less than two seconds additional time. Weights are recorded on tickets, strips, or sheets. The unit can be equipped to read-out weight data electrically to any data recording business machine.

Speedfilter

An automatic Speedfilter with high pressure and variable filter design that reduces filtration of large volumes of light or heavy precipitates to minutes has been introduced by Spincraft, Inc., 4122 West State St., Milwaukee 8, Wisc.

Two filter tanks 3.5 liters in size run simultaneously or independently at predetermined speeds up to 80 psi. Pressure is supplied from laboratory air supply, bottled gas, or separate compressor. Since there is no air flow through the system during filtration, volume of air required is low. Positive pressure

"Pipe-Line" Homo-Mixer showing intake turbine.

G-W high speed, high sheer homogenizer-mixer.

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For mixing chemicals, cosmetics, pharmaceuticals, protective coatings, dyestuffs and inks to produce emulsions of small particle size and long shelf life, G-W Eppenbach Homo-Mixer and Continuous Flow "Pipe-Line" Mixers are specified by leaders in the chemical and drug processing industries. Both high speed, high sheer homogenizer-mixers insure complete, "no vortex" mixing. Simple to operate, unvarying in accuracy, easy to clean and vibration-free—these precision mixers employ impact and critical hydraulic sheering for maximum contact with materials, thereby keeping mix time to a minimum, while assuring product uniformity.

For in-line processing, the Eppenbach "Pipe-Line" Mixer provides processing of emulsions, slurries, suspensions and related mixtures on a continuous flow basis.

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control is set at a predetermined level with a single regulatory valve.

The instrument has rigid sintered stainless steel filter discs, and can handle all types of particulate matter, organic and inorganic, with change of filters. It accepts filter paper, asbestos filter pads, or, by simple substitution of a cellophane filter, converts to an ultrafilter.

The Speedfilter requires only 15 by 22 inches of surface area, and operates on regular 115-volt, 60-cycle, A.C. power. All surfaces likely to touch materials to be filtered are of corrosion-proof stainless steel.

Nylon Bucket for Materials Handling Elevator

Frazier and Son, 20 Industrial West, Allwood, Clifton, N. J., has developed a nylon bucket that is lower in cost than steel buckets, extremely durable, easily cleaned, and which meets sanitation requirements for food and drug conveyors.

Easily removed and replaced, and requiring no lubrication, the buckets may be sterilized and washed without loss of color or shape. They are malleable but will not permanently bend or break when dropped, and are designed so that particles are not retained in cracks or crevices.

Similar to Frazier stainless steel buckets, the nylon carriers have the same interlocking construction and guides.

Double-Embossed Heating-Cooling Panel

A double-embossed panel particularly suited to immersion heating and cooling has been designed by Dean Products, Inc., 1048 Dean St., Brooklyn 38, N. Y. The Dean Panelcoil is stronger than single-embossed designs, and offers a lower pressure drop because the panels are twice as large. Sizes are almost unlimited in variety. Panelcoil can be formed to fit almost any space and assembled in special banks to give high capacity per cubic foot.

Laboratory Glassware Washer

A medium capacity glassware washer for smaller laboratories is being manufactured by Fisher Scientific Company, 717 Forbes Ave., Pittsburgh 19, Penna. The Fisher Standard Glassware Washer uses the same perforated stainless-steel baskets that it uses in its Deluxe Washer. They are designed for a wide variety of lab ware, from microscope slides to Erlenmeyer flasks, holding them for washing without slipping or josteling.

The baskets for the two models are interchangeable. The Standard model can be had for use of steam or electricity. The entire process is controlled by setting a selector switch, but any stage can be repeated at any time. A dial thermometer shows the temperature. A turbulent fill-and-empty action removes wax pencil marks, grease, oil, caked precipitates and the like.

A newly developed condenser (patents pending) sprays an atomized jet of cold water into the stream, condensing it before it can escape around the lid. A safety switch shuts off the power and closes all valves when the lid is raised, eliminating the danger of splashing technicians. And a water-level regulator prevents the power from being turned on until the water is an inch above the heater. Fiberglass insulation reduces heat loss.

The new Standard washer is 36 inches high, 35 inches wide, and 22 inches front-to-back, finished in white chemical-resistant enamel. The electrically heated model requires 600 watts of 115-volt 60 cycle A.C. for the drum motor and solenoid valves, and 6 kw of 230-volt single-phase.

Conveyor-Line Coder

Adolph Gottscho, Inc., Hillside 5, N. J., has redesigned its Model TMT Markocoder conveyor-line machine for imprinting codes, prices, and the like, on the tops of cans, bottles, jars, and other basically cylindrical products. The new design permits straight-through travel of containers to assure smooth, uninterrupted product flow. Cutting conveyors and lead plates are not needed. Maximum speeds are 1000 per minute.

The Markocoder is self-powered, driven by the product stream itself. Eight separate printing heads register imprints in the same spot on each succeeding product. A cam-activated mechanism automatically compensates for products of varying heights. It accommodates rubber and instant-drying fluid inks.

High-Speed Portable Mixers

A new line of high-speed, propeller-type portable mixers for fluid agitation in process industries has been announced by Mixing Equipment Company, Inc., 170 Mt. Read Blvd., P. O. Box 1370, Rochester 3, N. Y.

Designed as an integral unit, the new mixers, known as Lightnin mixers, offer increased mixing efficiency, improved handling convenience, and maintenance-free operation. Sizes range from ⅛ HP to 3 HP, and they are also available in a fixed mounting design, in all except the ⅛ HP size.

The mixers offer direct-drive speeds of 1750 RPM and 1150 RPM with higher impeller heads, and possess a gear-drive model speed of 350 RPM, providing up to 45 per cent more flow than previous units. Gear-drive models run quietly, are leak-proof, and are equipped with single-reduction internal helical gears for compact drive, additional strength, and improved gear-life. Both direct and gear-drive models rotate clockwise.

The new series offers positive drive chuck, permitting fast, accurate coupling in a simple operation. Its location is always above the maximum fluid level of the mixing tank. A flat on the mixer shaft insures positive grip and correct position with each shaft insertion.

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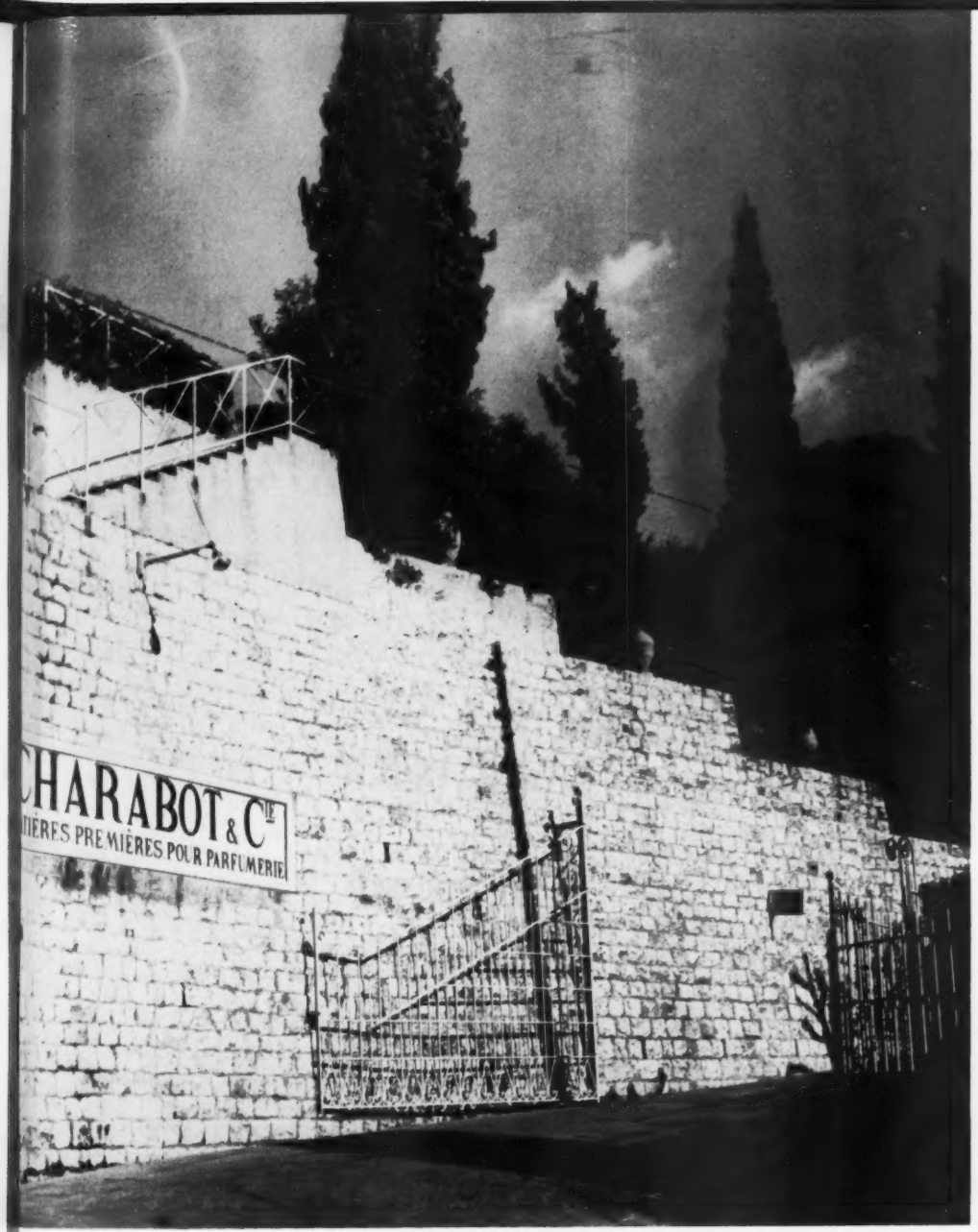

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Compounder's Corner

Hair Waving

The literature and the patent art speak of the need to "soften" the straight hair keratin so as to induce a new fiber configuration, a curl, under the influence of an external mechanical force. In molecular terms, this means the breaking of some of the inter-chain bonds so that the main chains can slide by one another and be rebuilt in a new form at some later stage of the process. It is suggested that permanent waving can be achieved through breaking of disulfide and of secondary bonds in various ratios. According to H. Bogaty (*J. Soc. Cos. Chem.* 11: 333, 1960), one can hypothesize the use of a large amount of disulfide breakdown with relatively little secondary bond attack, or alternatively one can visualize a waving process utilizing massive hydrogen bond rupture with only minor amounts of disulfide splitting.

In conventional waving practice, it can be assumed that both disulfide and secondary bond rupture take place. From this it follows that if in a conventional waving process, we increase the capacity of the waving solution to break secondary bonds, we should enhance its ability to impart a permanent wave. To demonstrate this, hair was waved in the laboratory by a standard procedure simulating commercial practice—fifteen-minute processing time with lotion, water rinse, thirty-minute wait and neutralization with a dilute hydrogen peroxide solution. Samples of the hair were taken prior to neutralization for analysis of sulfhydryl content, a measure of the extent to which the hair disulfide reduction has proceeded. After neutralization, the waved hair tresses were shampooed vigorously, shaped and dried to show the degree of curl imparted. Tighter curls are obtained when 2 *M* urea is present in the lotion, and the effect of the additive is even more pronounced when the waved tresses are examined in the wet state. Urea is known to be an effective hydrogen bond breaker. It has been shown before that its use in a variety of thioglycolate lotions results in substantial increase of the curl imparted without measurable increase in the amount of reduction of the covalent hair disulfide groups. Similarly when the secondary forces, hydrogen bonds and salt linkages, are more strongly attacked by the lotion containing added ammonia, the wave imparted is again stronger than in the absence of the additive; again the sulfhydryl level under the conditions of this experiment is not greatly altered by the addition of the alkali. The effects of pH and alkalinity of waving lotions are well known and have been described by many workers.

Since addition of secondary bond breakers to waving lotions enhances curl generation, it should be expected that materials which increase the secondary bonding in hair should act to depress the waving action. The addition of 1 *M* $MgSO_4$ tends to lower the level of hair reduction slightly, the effect of sulfhydryl generation is small compared with the effect on the strength of the wave. With saturated $MgSO_4$, the ability of the thioglycolate to reduce the hair has definitely decreased, but the curl imparted is virtually nil. Similar results are obtained with other salts such as sodium sulfate.

Thus far, the experimental results have been concerned with secondary forces in the wave generation step in which lotion acts on the fiber. If it is argued that during generation of the wave, covalent and secondary bonds must be broken, then stabilization of the wave in the newly formed configuration should occur by rebuilding some of these same types of molecular bonds. Conventionally waved hair is stabilized by rebuilding of cross links through treatment of the reduced hair with oxidants such as sodium bromate or perborate, or hydrogen peroxide, and this reaction is usually described as the re-oxidation of sulfhydryl groups in the hair to reform disulfides, although new secondary bonds must also form. To isolate the contribution of secondary bond rebuilding, it was of interest to determine whether stabilization of curl could be produced experimentally without reformation of the keratin disulfide bonds.

Since atmospheric oxygen is known to oxidize thioglycolate ion and sulfhydryl groups in hair, experiments were performed under anaerobic conditions. Immediately on removal from the apparatus, samples were taken from the hair tresses for analysis of the sulfhydryl content and the waved hair was shampooed. An appreciable amount of curl is produced under the test conditions and the waves so produced are indeed stable to shampooing. This permanence exists despite the high level of reduced disulfide in the form of sulfhydryl shown in the analytical data. The permanence of curl to shampooing cannot then be explained by the rebuilding of disulfide in the waved configuration, and it must be concluded that stabilization is brought about by secondary bonded cross links.

If the permanent waves produced by treatment in an inert atmosphere are stabilized by secondary forces, it should be possible to destabilize or relax them by reaction with agents which rupture secondary bonds. Similarly if permanent waves produced by conventional reduction and reoxidation of disulfides are presumed to be stabilized principally

by disulfide cross links then it should be possible to destabilize them by treatment with agents which rupture disulfide groups but not with secondary bond breakers. An experiment was devised to examine the extent of curl relaxation obtained after exposure to various media. Waved hair tresses were prepared by waving in an inert atmosphere for eighteen hours. Another set of tresses was prepared by a process simulating current commercial practice. The hair tresses were then immersed and agitated in solutions which rupture disulfide bonds (0.5 *M* ammonium bisulfite at pH 6 for twenty minutes or 0.15 *N* ammonium thioglycolate at pH 9 for five minutes) or in nonreductive solutions of hydrogen bond breakers (40 per cent resorcinol for fifteen minutes or 10 *M* LiBr at 80° C. for fifteen minutes). After relaxation in these media, the hair tresses were washed vigorously and dried. It is clear that loss of curl follows relaxation in disulfide reducing agents but not after treatment with hydrogen bond breakers. In contrast is the behavior of hair waved in the inert atmosphere and stabilized by secondary bond rebuilding. Here substantial relaxation of curl is observed on treatment with the hydrogen bond breaking solutions whereas the reducing agents scarcely affect the wave level.

It can therfore be concluded that stabilization of imparted curl can come about from the utilization either of covalent disulfide bonds or of the secondary bonds that are present in hair. Which of these types of molecular forces are invoked will depend on the details of the process employed.

In view of some of the findings described above, it would seem natural to wonder whether waving can be accomplished through the use of secondary bond breaking agents alone, i.e. in the absence of reducing agent. Experiments conducted at room temperature with a variety of secondary bond breakers failed to demonstrate any kind of waving activity. At elevated temperatures, it was possible to show that some degree of waving was feasible. Immersion of hair on a rod in concentrated solutions of LiBr at 80° C. and slow dilution of the solution over a period of one and one-half hours to lower the concentration to zero produced a weak but definite wave pattern; 85 per cent formamide solutions at 100° C. for ten minutes yield very tight, frizzy waves and hair obviously badly weakened and damaged. The use of saturated urea solutions at 80° C. for three hours following a procedure described in a Dutch patent yielded pleasing curl patterns. The analytical data for sulfhydryl content suggest no alteration from initial values. It must be concluded that it is possible to wave hair in the laboratory with solutions containing no reducing agent, and with little or no disulfide attack, if there is sufficient secondary bond breakdown. At most, the level of disulfide rupture is well below our analytical means for detection.

Sucrose Fatty Acids Esters

An improved procedure for preparing the sucrose mono-fatty acid esters has been developed by H. Hopkins and L. V. D. Small (*J. Am. Pharm. Assoc. Sci. Ed.* 49: 220, 1960). This process eliminates bitter-tasting substances present in the final product prepared by the previously recommended procedure.

Sucrose monomyristate has been found to be a poor solubilizer for essential oils, thereby reducing its potential usefulness in pharmaceutical formulation.

The sucrose esters used in this study are good emulsifying agents. Mixtures of the monoester and diester were more suitable for emulsifying vegetable oils than either of the esters when used singly. Sucrose monomyristate produced excellent liquid petrolatum emulsions.

Sucrose dipalmitate, Sucrodet D-600, in a syrup base produced an excellent semisolid, gelled vehicle. This vehicle may be flavored as desired. These flavored, gel-like vehicles are recommended as being well-suited to pediatric use.

The sucrose esters used in this study do not appear to favor microbial growth.

Intraperitoneal acute toxicity was determined for sucrose monomyristate using the rat. The LD_{50} was 579 mg./Kg. Sucrose monomyristate produced rapid hemolysis of rat blood *in vitro* at low concentrations.

Although the sucrose fatty acid esters may have what appears to be a rather limited range of usefulness due to their inability to solubilize certain materials effectively, nevertheless, they do appear to be well-suited for use as emulsifying agents and for the preparation of inexpensive, flavorable, gel-like vehicles which are suitable for use with many therapeutic agents.

These new, surface-active materials appear to possess sufficient pharmaceutical potential to warrant a complete toxicological study.

Antimicrobial Composition

Diaphene, a synergistic composition composed of 5,4′-dibromosalicylanilide and 3,5,4′-tribromosalicylanilide, possesses many advantageous properties which contribute to its effectiveness as a bacteriostat and general antimicrobial in soaps, cosmetics and topical pharmaceuticals according to H. C. Stecker and R. E. Faust (*J. Soc. Cosm. Chem.* 11: 347, 1960). It is a white powder which does not impart an objectionable or strong medicinal odor to products and which is easily incorporated into soaps and many varied cosmetic products, especially emulsions. Toxicity tests and history of use in commercial products indicate that such a brominated salicylanilide composition has a high margin of safety, and, at effective levels, does not irritate or sensitize normal human skin.

Solulan C-24

Solulan C-24, described in "Compounder's Corner" last month, page 230, is being manufactured and offered for sale by American Cholesterol Products, Inc., Amerchol Park, Edison, N. J. The name of the manufacturer was omitted through a regrettable oversight, since the source of a material is an essential part of its description.

Cellase 1000

Cellase 1000, offered by Wallerstein Company, Staten Island 3, N. Y., is a new cellulose-degrading enzyme capable of depolymerizing cellulosic polysaccharides of high molecular weight into low molecular weight fragments. The enzyme promises to be useful in the correction of gastro-intestinal disturbances and especially in facilitating the digestion of cabbage, cucumbers and other "difficult" vegetables. It is a palatable product with high potency and low bulk, permitting the formulation small tablets and capsules of attractive appearance.

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Skin Research

Sunburn and Suntan

The total solar radiant energy which reaches the earth's surface at normal incidence amounts to about 80 million ergs per square centimeter per minute under optimal conditions. Only about 0.2 per cent of this energy lies within the invisible ultraviolet range of wavelengths which can elicit redness or sunburn in human skin. An exposure to about 3 million ergs per square centimeter of these sunburn-producing wavelengths is required to produce a mild erythema in untanned normal white skin. Therefore, an exposure time of about 20 minutes to direct summer midday sunshine can result in sunburned redness in such skin. Tenfold extension of this exposure time results in a painful blistering sunburn. The subjectof "Physiological and Pathological Changes in Skin from Sunburn and Suntan" is reviewed by Allan L. Lorincz (*J.A.M.A.* 173: 1227, 1960).

After a sufficient exposure to sunlight, there is a characteristic latent period of usually not less than two or three hours before erythema appears. The maximum intensity of the redness is usually reached in 10 to 24 hours, and thereafter it gradually subsides within the next one to seven days, depending on the intensity of the reaction.

If exposure is excessive, in addition to the erythema, edema and blistering of the skin may develop. If extensive sunburn is this severe, systemic manifestations of chills, fever, and prostration may occur. Hyperesthesia, pain and/or itching generally appear coincident with the erythema of sunburn and usually precede blistering should it develop. An increase in melanin pigmentation and desquamation (peeling) may follow even a relatively mild erythema. The peeling may appear as late as one to two weeks after exposure.

The darkening or tanning of the skin which follows sunlight irradiation or sunburn is a complex phenomenon.

Brown melanin pigment arises in specialized dendritic cells called melanocytes. In embryonic life, these cells arise in the neural crest and migrate through the developing dermis to their final locations in the skin. They can be found scattered as a network in the basal layer of the epidermis. Cytoplasmic granules in these cells bear a copper-containing enzyme, tyrosinase, which brings about the oxidation of the amino acid, tyrosine, to melanin pigment through a now familiar sequence of reactions, first elucidated by Raper and his associates. During its formation, the final melanin pigment polymer becomes firmly bound to the proteins of the melanin granules. Normally, the enzyme tyrosinase is believed to be kept in a state of partial inhibition, which can apparently be released by a variety of pigmentogenic factors including ultraviolet irradiation. Melanin pigment granules can apparently be transferred via the dendritic processes of the melanocytes into epidermal cells. They accumulate especially in the basal cells in the form of supranuclear clusters or so-called caps. These supranuclear caps of melanin pigment may partly account for the resistance of the basal layer to solar damage. Melanin can protect against ultraviolet effects not only by its ultraviolet screening action but also, chemically, by acting as a repository or trap for photoactively produced electrons or reactive radicals, because melanin itself has stable free-radical properties. Melanin pigment is gradually swept up from the epidermis to the surface of the skin and is shed from it in the more or less continuous physiological current of epidermal regenerative proliferation, keratinization, and desquamation.

In suntanning, an initial darkening of the skin often appears a few minutes after exposure and reaches a maximum in less than one hour. This immediate tanning is brought about by the long-wavelength ultraviolet spectrum extending between 3,000 and 4,300 A, with a broad maximum at about 3,400 A. The phenomenon is believed to result from the direct photo-oxidation of relatively pale tan, performed, reduced melanin to darker, oxidized melanin. If the oxygen supply is reduced during irradiation such as by blanching the skin with pressure from a quartz plate, this immediate tanning effect can be prevented. Once this type of darkening has developed, it may persist for widely varying periods, ranging from an hour or so up to more than a year.

A second type of phenomenon affecting pigmentation occurs several days after solar exposure and consists of an upward migration of melanin granules in the epidermis, probably as a result of their dispersion and retention in the dendrites of the melanocytes. This type of retention and dispersion of melanin in dendritic processes of melanocytes is also seen in many inflammatory skin disorders in which epidermal cells have been mildly injured.

Finaly, a third and most important factor in the suntanning process is the stimulation of new formation of melanin in the skin. This new formation of melanin, or true tanning, is brought about by the same ultraviolet spectrum which causes sunburn, and it begins about two days after exposure to an erythema-producing dose of such rays. It reaches a maximum after about two or three weeks and beings to decline after one month. After 10 months, this tanning is usually completely gone. A number of mechanisms have been suggested to account for the increased melanin formation after erythemogenic ultraviolet. ir-

radiation, and possibly all play roles in the process. These are (1) a reduction in tyrosinase-inhibitory; epidermal sulfhydryl groups from such radiation; (2) ultraviolet catalysis of tyrosine oxidation to dopa (dihydroxyphenylalanine), with the small amounts of dopa thus formed serving to enhance the tyrosine-tyrosinase reaction; (3) alteration of the redox potential of the skin by the radiation so as to favor dark melanin formation; and (4) the increased skin temperature accompanying the ultraviolet erythema, which may accelerate the tyrosine-tyrosinase reaction.

A point of interest is that window glass as well as many sunscreening preparations such as those based on para-aminobenzoic acid effectively filter out the erythema-producing wavelengths of sunlight yet permit passage of longer pigment-darkening rays above 3,200 A. Sunlight-induced darkening of freckles, therefore, is not prevented by such screening agents.

Endocrine and other factors which generally promote melanization also tend to enhance suntanning. For example, exposure to sunlight enhances Additionian melanosis and the facial pigmentation of chloasma which may accompany pregnancy. A further noteworthy phenomenon, which occasionally occurs in castrated persons, is the development of tanning in areas which were sunburned even several months previously when androgenic or estrogenic steroids are administered.

It is, of course, common knowledge that there are great individual variations in susceptibility to sunburning and suntanning. Fair-skinned blonds and those with reddish-blond hair in particular are especially susceptible to ultraviolet burning and show little tendency to tan except perhaps to form freckles. Susceptibility to sunburning can be expressed semiquantitatively by measuring threshold erythema-producing doses on areas of skin which are usually unexposed to the sun.

The remarkable acquired tolerance to sunshine which develops subsequent to repeated exposures has two main mechanisms, namely, increased melanin pigmentation and thickening of the horny layer. Both of these factors serve as highly effective screens against further penetration and damage by sunburning ultraviolet rays. That pigmentation is not the sole factor in this development of tolerance is indicated by the fact that it also occurs in completely nonmelanized skin such as is found in patches of vitiligo. Also, the thick horny layer normally present on the palms and soles, even in the absence of pigment, makes it practically impossible to sunburn these areas. The role of the stratum corneum in solar tolerance is still further pointed up by the observation that stripping the horny layers from the epidermis by repeated applications of adhesive tape lowers the threshold for sunburn. Sweat also affords some protection to the skin against sunburn because it contains substances which, to some degree, can absorb ultraviolet radiation of wavelengths shorter than 3,300 A.

Hormones and Pigmentation

Numerous workers have reported that estrogens in one form or another, either painted on, given by injection, or taken orally can stimulate melanogenesis in the skin of a wide variety of species. Many of these observations have been macroscopic only and the microscopic studies have been confined to vertical skin sections. Bischitz and Snell using carefully controlled histochemical experiments and studying both skin sheets and vertical skin sections showed that in the ovariectomized guinea-pig which had received small doses of estrogen by intramuscular injection that the amount of melanin was increased both inside and outside the melanocytes. The greatest increase occurred in the areola where a very large increase in free melanin occurred. In the non-sexual skin areas there was a small increase of free melanin, but a greater increase in melanin within the melanocytes. No statistically significant changes in the melanocyte counts were produced in any of the skin regions. Progesterone given under similar conditions caused an increased production of melanin, but the effect produced was less than that found after the estrogen therapy. Neither of the hormones was capable of restoring the irregularity of cell outline which was found to occur in many of the melanocytes following the preceding ovariectomy. The present research by R. S. Snell and P. G. Bischitz (*J. Invest. Dermatol.* 35: 73, 1960) is a continuation of this investigation on the influence of the female sex hormones on melanogenesis. It was hoped that the results would indicate whether large doses of estrogen exerted a greater, a lesser or a different effect on melanogenesis than the smaller doses used previously. By giving both estrogen and progesterone at the same time it was hoped to ascertain whether the effects of these hormones were summated or whether their presence together exerted a completely new influence on the activity of the melanocytes.

The effect of large doses of estrogen given alone, and of small doses of estrogen and progesterone given together, on the melanocytes and melanin in the skin of the ear, anterior abdominal wall and areola have been studied in pure black and pure red ovariectomized guinea-pigs using carefully controlled histochemical experiments. The melanocytes were identified by using the dopa reaction. The results were assessed by comparing the melanocytes and melanin in closely adjacent skin areas removed before and after hormone treatment from each region in the same animal. In the case of the areola the right one was compared with the left.

Large doses of estrogen produced in all the regions a great increase in the amount of melanin both inside and outside the melanocytes and the effect was seen to be greatest in the skin of the areola. In the majority of animals this was accompanied by an increase in the size of cell bodies and an increase in width of the dendritic processes. A statistically significant increase in the melanocyte counts occurred in the anterior abdominal wall skin.

Small doses of estrogen and progesterone produced a similar but smaller increase in melanogenic activity. No statistically significant changes in the melanocyte counts were produced in any of the skin regions.

Large doses of estrogen given alone, or small doses of estrogen and progesterone given together, corrected the deformed and shrunken appearance which is seen in some of the melanocytes after ovariectomy. This was believed to be brought about by the large increase in the amount of melanin within the melanocytes which occurs following hormone therapy.

net effect of the arrangement is an exchange for one and one-tenth share of Three M common.

The reason for the special issue of a Class A stock by Three M to effect the merger, it was explained, would be to give Warner-Lambert shareholders about the same dividend under the combined company as they might have received from Warner-Lambert this year. There are still details of the merger to be discussed and the agreement is still to be approved by the two companies' directors and shareholders.

This will be the second time Warner-Lambert has attempted to merge with a large concern outside the pharmaceutical field. In late 1958, the firm tentatively agreed to merge with R. J. Reynolds Tobacco Co. The merger broke down at the eleventh hour, however. Exact reasons for the breakdown were never disclosed officially but were thought to center on disagreement over what the exact status of Warner-Lambert would be in the combined company. Warner-Lambert officials were undestood to have wanted complete autonomy under R. J. Reynolds.

Under the contemplated merger with Three M, Warner-Lambert "will retain its full identity and operating autonomy." It was understood that Alfred Driscoll, Warner-Lambert president, would remain as president of the compnay, which would be a Three M division. Mr. Bobst's future role in the combined concern was not disclosed.

McKesson & Robbins, Inc., is completing negotiations with *Droguerias Aliadas, S.A.*, of Colombia, for the acquisition of a half-interest in that firm's drug enterprises in Colombia and Latin America. The purchase price is estimated at approximately $3,500,000, and McKesson may at a later date, under certain conditions, invest an additional $1,000,000.

Droguerias Aliadas is a leading manufacturer, wholesaler and retailer of pharmaceutical and proprietary drug products, cosmetics and toiletries in Latin America. At present, the firm operates Laboratorio Uribe Angel (LUA), one of the largest proprietary drug plants in South America; Laboratorio Cup, the largest pharmaceutical drug manufacturer in Colombia; the Max Factor cosmetic plant in Bogota; and, jointly with McKesson, Calox International in Ecuador, Panama and Colombia.

Droguerias Aliadas also operates 11 wholesale drug establishments and the Nueva York retail drug stores, a chain of 103 stores, of which more than half have been modernized according to U.S. standards with the help of McKesson's retail trade promotion department.

American Hospital Supply Corporation has acquired *Canadian Laboratory Supplies Limited* of Toronto. The Canadian company has a country-wide sales force operating from sales and distribution centers in Toronto, Winnipeg, Montreal and Ottawa. Management personnel and operating policies of the acquired company will continue.

H. Kohnstamm & Company, Inc. of New York has entered into a joint agreement with *Horace Cory and Co., Ltd.* of London, founded in 1828 and one of the largest pigment producers in Great Britain. Kohnstamm will have a major interest in the British company, whose shares are traded on the London Stock Exchange. A new plant will be constructed on the outskirts of London which will eventually replace the present Cory plant and Kohnstamm dyestuffs and pigment colors will be manufactured for sale throughout the Commonwealth and "outer seven" trading areas and elsewhere in the world.

Lucky Tiger Manufacturing Company has acquired the *Lee Drug Company* of Denver, Colorado.

Mary Chess, Inc. has purchased the *Marie Earle Corporation* from *General Beauty Products, Inc.* Marie Earle has become a subsidiary of Mary Chess and will have showrooms and offices at 597 Fifth Avenue, New York City.

Welton Laboratories, Inc. and *Garde Drug Company, Inc.* are being merged and expanded for additional national coverage. Welton Laboratories and *Old Empire* recently merged.

Mead Johnson & Company has acquired the pharmaceutical firm of *Charles McDonald Pty., Ltd.*, in Sydney, Australia. Negotiations were completed in Sydney and the purchase was made for approximately $800,000. The McDonald firm, which was founded in 1946, manufactures and markets a line of 25 products, including sedatives, analgesics, vitamins and hematinics.

G. D. Searle & Co. has formed a new company in Denmark, *G. D. Searle A/S*, with headquarters in Copenhagen. Over the next two or three years, the parent company will invest about $6 million in expanded facilities.

The Upjohn Company is establishing a wholly owned Italian subsidiary, *Upjohn S.p.A.* to manufacture and distribute Upjohn pharmaceuticals in Italy. The company now has 13 subsidiary companies operating in 12 countries, as well as branches in Venezuela, Puerto Rico and Cuba.

The Flavor Division of *International Flavors and Fragrances, Inc.* has announced a program of expansion and consolidation of activities at its Teterboro, N. J. plant. This program, projected on a three year basis, will increase production capacity and research facilities and consolidation of all U. S. flavor activities at this location.

Fleuroma, Inc., now offer integrated international service to American customers. These facilities include *Poons and Lengsfelder, Ltd.* in London, *Fleuroma S.A.R.L.* in Paris, and *Essencias Fleuroma Limitada* in Sao Paulo, Brazil.

N. V. Chemische Fabriek "Naarden" has established a subsidiary in Mexico, *Naarden de Mexico, S.A.*

Vick Chemical Company is changing its corporate name to *Richardon-Merrell Inc.* upon stockholder approval of a proposal by the board of directors. ●

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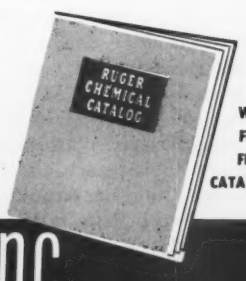

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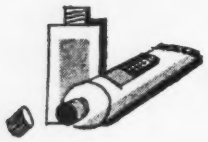

Advancing Therapy

Research Management

I have just come back from my annual refresher at the Medicinal Chemistry Gordon Research Conference, and I have been back long enough to read some of the material that clutters my desk whether I'm at the desk or away. The contrast is certainly worthy of note. First, the Gordon Conference. These are the cream of the working crop; they produce the medicinal research ideas and they carry them far enough so that the clinical physicians can understand the work and carry it to a useful conclusion. Once in a while, these investigators seem to be embedded in their ivory towers to the point that they may be somewhat insulated from reality. Far less of this actually takes place than you would normally expect; the conferees are intelligent, articulate people who can be made to translate their own scientific jargons and then make important sense with respect to drugs and the selling of drugs.

I can't say as much for what I see in print about how management should control and regulate research. If you mean research, you mean the discovery and the development of information that is unknown and unsuspected when you start. A process of this nature has to be uncontrollable. Attempts to direct research should be made in the form of mild nudges, in an attempt to influence the direction, not to define the path that must be taken. No manager will admit that he tries to restrict research thinking, yet the result is the same when the research process is entangled in bureaucratic red tape. Insistance on reports at specified intervals, or on accounting for time, for example, may seem logical, but these demands are being directed at creative individuals, not at routine clerks. Most of these individuals, when it is worth their while, can easily outthink a computer and their reports and accountings are quite as meaningless as they may wish them to be.

The best research director is a buffer between management and the research department, protecting each from the other. No management can function if its money is not being spent wisely; no research department can produce if it is too much restricted by non-research requirements. The good director gains time and freedom from burdensome restrictions for his department, but keeps his individuals content within the specific framework required for profitable operations.

Steroid Structure and Activity

Anti-inflammatory potency of the steroids in this study by W. E. Dulin, F. L. Schmidt, and S. C. Lyster (*Proc. Soc. Exptl., Biol. Med.* 104: 345, 1960) was increased by 6α-fluoro in all cases except 9α-fluorohydrocortisone. 6α-Fluoro increased the glycogenic potency of all compounds in this series. Variable results were obtained on sodium excretion in presence of 6-fluoro since, in some cases there was an increase, in others no change, while sodium retention of one compound (9α-fluoroprednisolone) was markedly depressed when 6α-fluoro was present. Influence of the 6α-fluoro on sodium retention is different than that obtained with 6α-methyl which consistently decreased the activity of sodium retainers or in the case of 2α-methyl or 9α-fluoro which generally increased sodium retention. Reason for the variable results of 6α-fluoro on anti-inflammatory and sodium retaining activity is difficult to interpret but may be due to 1) differences in physical properties of compounds which produce different results due to characteristics of a given test, or 2) actual changes in inherent activity which is manifested by different effects at the target organs.

16α-methyl is also not a universal potentiator of glycogenic or anti-inflammatory activity. When the parent compound was a sodium retainer, the compound with the 16α-methyl generally possesses less sodium retaining activity. In one case where the parent compound was inactive, the presence of 16α-methyl did not cause any change in sodium retaining activity. It is therefore concluded from the series studied here that 16α-methyl does not cause sodium retention but actually depresses sodium retaining activity of sodium retainers.

Results reported here show that it is not yet possible to predict accurately the effects of chemical modifications on biological activities of steroids. Chemical changes in certain combinations can be expected to produce variable alterations in quantitative activities. In certain instances, however, when a single change increases the anti-inflammatory or glycogenic potency of a compound, it does not decrease potency when in combination with other potentiators.

One compound (6,9-difluoro-16α-methyl-prednisolone) is one of the most potent anti-inflammatory or glycogenic steroids tested. When this is considered along with the fact that the compound does not possess significant sodium retention at doses which are anti-inflammatory, it shows that one biological activity can be altered independently of another. This compound is therefore potentially useful clinically in inflammatory conditions.

Observations of marked increase in anti-inflammatory activity with no change or decrease in sodium retaining activity lead to optimism in testing new steroids for differential activities. Since it is possible to reduce sodium retention activity while retaining glycogenic or anti-inflammatory potency, it may also be possible to dissociate, by chemical modification, protein catabolic and ulcerogenic activities from anti-inflammatory effects.

Decay Preventing Dentifirice

The American Dental Association officially recognized Crest toothpaste as "an effective decay-preventive agent." Crest is the first dentifirice ever to receive such recognition.

In a statement published in the August 1 issue of *The Journal of the American Dental Association*, the A.D.A. Council on Dental Therapeutics reported:

> "Crest has been shown to be an effective anticaries (decay preventive) dentifrice that can

be of significant value when used in a conscientiously applied program of oral hygiene and regular professional care; Crest dentifrice may also be of value as a supplement to public health procedures."

The dentifrice contains stannous fluoride as its principal active ingredient. The Council emphasized that its action applied only to this specific product.

The present Crest formulation contains 0.4 per cent stannous fluoride, 39 per cent calcium pyrophosphate, 30 per cent glycerin, 1.0 per cent stannous pyrophosphate, 24.97 per cent water and 4.63 per cent miscellaneous formulating agents.

Three elements were involved in the Council's decision: the safety, the effectiveness, and the advertising claims. In taking its action, the Council considered both the results of clinical studies conducted during a ten-year period and "the manufacturer's willingness to limit advertising claims to those supported by adequate research."

Seven clinical studies, varying from one to two years in length, have been conducted on the dentifrice. All seven test groups reported less dental decay during the study period than did control groups using dentifrices without stannous fluoride. "However, the magnitude of the decrease in caries incidence in each test is difficult to express without making specific reference to the conditions of each study," the Council report stated.

One group used the dentifrice "under normal conditions in their home" and experienced a 23 per cent reduction in the incidence of dental decay. In another group where there was supervision of brushing once daily with the product, there was a 34 per cent reduction. In a third group with supervised brushing three times daily there was a 57 per cent reduction.

The Council pointed out that the variation in the figures "illustrates the probable need for frequent use of Crest to achieve maximum benefits, and associated Crest's usefulness with a program of good oral hygiene," including proper use of the toothbrush, regular dental care and avoidance of excessive consumption of sweets.

Three methods of obtaining the benefits of fluorides are now recognized by the Association: (1) dietary fluorides, best provided by fluoridation of community water supplies; (2) topical application of fluoride solutions directly to children's teeth by the dentist, and (3) the stannous fluoride dentifrice. From the standpoint of cost, effectiveness and convenience, fluoridation is by far the most desirable method, according to the Council.

Commercial Thyroglobulin

Reheis Company, Inc., is now manufacturing thyroglobulin for the pharmaceutical industry.

Thyroglobulin is the physiologically active protein extracted from fresh thyroid glands and is characterized by exceptionally high purity. The Reheis thyroglobulin will afford improved thyroid treatment because its purity will eliminate many of the side effects often associated with the use of ordinary desiccated thyroid.

Emylcamate Tranquilizer

Striatran is a new tranquilizer, generic name emylcamate, being offered by Merck Sharp & Dohme for the relief of mild anxiety and tension. It has some muscle-relaxing activity. The new drug is not one of the phenothiazines, being more closely related chemically and pharmacologically to meprobamate. In half the dosage of meprobamate, it is said to cause little or no drowsiness and will not impair mechanical efficiency and intellect. Clinical trials to date have not uncovered new or unusual side effects and no cumulative effects, depression, nor toxicity.

The drug, whose pharmacology was described by B. Melander in *J. Medicinal & Pharmaceut. Chem.* 1: 443, Oct. 1959 is 3-methyl-3-amyl carbamate or 1-ethyl-1-methylpropyl carbamate and is a white crystalline solid with a slight camphoraceous odor. It melts at 56-58° C., is very slightly soluble in water and is very soluble in alcohol, ether, benzene. According to the Merck Index, its preparation is described in German patents 245,491 and 254,487 of 1912.

Sodium in Antacids

In the treatment of diseases such as peptic ulcer or bleeding esophageal varices, antacids are often prescribed. Concomitant liver or heart disease may require sodium restriction because of the danger of ascites and edema. In this situation the authors have been amazed by the occasional sudden development of edema or ascites coincident with antacid therapy.

The suspicion that the sodium content of antacids was responsible for these events prompted this investigation by D. G Rimer and M. Frankland (*J.A.M.A.* 173: 995, 1960. Patients hospitalized for acute ulcer symptoms often are given 1 oz. of antacid every hour during waking hours, the total daily dose approximating 500 cc., or more, if nightly doses are given. The increased sodium intake on this regimen ranges from 500 to 2,500 mg. per day.

Aluminum hydroxide gel may be prepared by a number of methods. The products vary widely in viscosity and particle size, and hence in the rate of solution in acids. It is known that such factors as the degree of supersaturation with respect to aluminum hydroxide, the pH during precipitation, the temperature, and the nature and concentration of by-product ions present are important in determining the physical, and to an extent, the chemical properties of the aluminum hydroxide.

Some commercial preparations contain more aluminum hydroxide than the official product. Sodium carboxymethyl-cellulose is commonly used as a suspending and emulsifying agent and in 2 per cent solution would supply 1.480 Gm. of sodium per liter. This obviously could account for a large part of the sodium in some of the preparations, and the difference between liquid and tablet preparations may be explained on this basis.

There is a method for measuring the sodium and potassium content of antacids. The results from use of this method of measurement show that the currently popular antacids contain between 11.9 to 269.7 mg. of sodium per ounce. The source of sodium is not always known, but may be due in part to the use of sodium carboxymethylcellulose as a suspending agent and the use of sodium compounds in the production of aluminum hydroxide or in the sodium compounds used as preservatives. An effective, palatable, non-constipating calcium carbonate-magnesium-oxide suspension with negligible amounts of sodium can be prepared.

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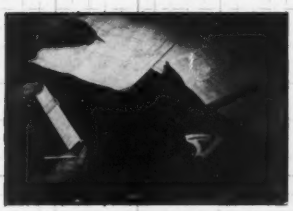

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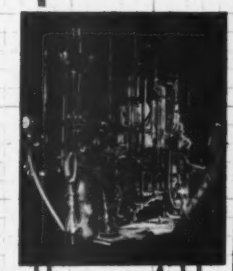

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(*Continued from page 347*)

respect to the uses of the materials or compounds, etc., so that later, in the prosecution, the applicant will not be barred from showing by way of affidavit that the invention has a utility which is not possessed by the teaching of the prior art references.

Although the Patent Office is very strict about what is considered new matter, the courts are inclined to be more lenient and take the view that since the Patent Office permitted the change it is acceptable. Perhaps as good an example as any of the referred-to attitude of the court is reported in the 1954 decision invalidating McDonough's U. S. Patent 2,577,710, covering the basic permanent waving composition. In that case, although, as will be recalled, the court invalidated the patent, it nevertheless approved amendments to the *p*H and the molecular weight of the composition, even though these amendments represented a narrowing of the range originally disclosed.

As in most other areas dealing with patent requirements, it is better to err on the side of giving more information than necessary than on the side of giving a meagre disclosure. Then, questions of new matter and sufficiency of disclosure can be minimized and, perhaps, eliminated.

RECENT PATENTS

2,945,783—Reheis—Aluminum Protein Antacid.

2,945,784—Lepetit (Italy)—Streptomycin and Dihydrostreptomycin Salts.

2,945,785—Armour & Co. — Method of Obtaining ACTH Preparation of Enhanced Potency.

2,945,851—Geigy—Process for Obtaining An Active Substance With Action On The Heart From Plants Of The Voacanga Genus.

2,945,852—G. D. Searle—Oxygenated Androstano Pyrazoles.

2,945,853—Keystone Chemurgic Corp.—Sulfo-Bacteriostats.

2,945,854—Ethicon—Pyridyl Dialkoxy Acrylophenones.

2,945,855—Mead Johnson—Phenothiazines.

2,945,859—Burroughs Wellcome — Diaminoquinazolines.

2,945,868—G. D. Searle—Trihydroxyestratriene Ethers.

2,945,860—Farbwerke Hoechst—Piperazine Carboxylic Acid Esters.

2,945,876—Nopco—Vitamin A Intermediates.

2,945,888—Hoffmann-La Roche—Unsaturated Di(Phosphonium Halides).

2,946,723 — Dumas-Wilson — -P-Aminosalicylic Acid Composition.

2,946,724—Am. Cyanamid—Stable Poliomyelitis Live Virus Vaccine.

2,946,725—Procter & Gamble—Dentifrice.

2,946,781—Merck—Adenosyl Homocysteine Process.

(*Continued on page 398*)

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Industry's Books . . .

Color Additive Amendments of 1960 with Explanation, *by CCH Editorial Staff: Commerce Clearing House, Inc., New York, One volume, 6" x 9", 32 pages, paper covers,* **$1.**

An entirely new set of rules covering foods, drugs, and cosmetics has just hit the scene. This new law makes it necessary to establish the safety of almost any coloring ingredient used in or on a food, drug, or cosmetic. This CCH booklet provides the new law in capsule, plus full text of the 1960 amendments with understandable explanation. Special terms are defined, and restrictions on sale or use and prohibited practices are set out. Some specific areas covered include present coal-tar color listings, non-coal-tar colors, new uniform rules for all colors, the anticancer clause, procedure for issuance and a review of "listing" regulations.

The National Formulary, Eleventh Ed., *prepared by the Committee on National Formulary under the supervision of the Council, by authority of the American Pharmaceutical Association. Published by the American Pharmaceutical Association, Washington 7, D. C. 1960. Distributed by the J. B. Lippincott Co., Phila.,* **$9.**

N. F. XI is bigger than its predecessor—it contains 815 monographs (N.F. X had 733); it has 285 new items (137 from U.S.P. XV). Its analytical procedures have been modernized and include column and paper chromatography, ultraviolet and infrared spectrophotometry, radioisotope tracer analysis, and countercurrent extraction. Its new two-column format makes reading easier; the page-top guide facilitates its use. The General Information section includes a useful discussion of ophthalmic solutions with procedural guides for extemporaneous preparation. An important increase is noted in the 42 N. F. Reference Standards (N.F. X had 10). Most of the new reference standards are required in spectrophotometric analytical procedures. More material than ever has been included in 563 pages (N.F. X had 910 pages). This was accomplished by the two-column format, new type face, and style of arrangement.

Geheb Codex, *edited by Dr. Felix, Diepenbrock, 1932 pages, ninth edition, 1960, Wissenschaftliche Verlagsgesellschaft, N.B.H., Stuttgart,* **$38.25.**

This standard publication, replacing the eighth edition of 1953, with its 1954 and 1956 supplements, is a compendium of European pharmaceuticals. More than 20,000 specialties are listed by trade names, indications of composition, and applications, as well as the manufacturer. The book is not only useful to those interested in learning about foreign markets and products, it is of obvious value to new product people trying to keep abreast with new offerings all over the world.

The Essence of Beauty (A History of Perfume & Cosmetics) *by Aytoun Ellis, 200 pp., New York, The Macmillan Co., 1960, Cloth,* **$5.**

Here is a fascinating account of the history of perfume from the time of the Egyptians, through all the ancient civilizations in the Near and Far East to the present day; how these perfumes were made, how fashions varied, how new scents were discovered and the old ones allowed to die out; the strange alchemies and properties said to be attached to each one. Here, culled from many sources, is a detailed description of all the strange and sometimes beautiful-sounding ingredients that have been used throughout the ages in its manufacture—of Ambergris, that mysterious product of the male sperm whale that, as late as the Sixteenth Century was believed to be honeycombs transmuted by sea water; of Rue, Sprigs of which still decorate the Old Bailey on the first day of the New Assizes; Musk, that precious commodity that is sewn into the skins of bullocks by the hunters for its long journey from Tibet to the China seaboard, finally to reach Europe in decorated caddies; the Tuberose, symbol of voluptuousness, that the Malays call "Mistress of the Night." In fact, whether you are the perfume buyer of a department store, a historian in search of information, or merely looking for entertainment, Essence of Beauty cannot fail to be of absorbing interest.

The Search for New Antibiotics (Problems and Prespectives) *by G. F. Gause, Professor and Scientific Director of the Institute of Antibiotics of the Academy of Medical Sciences, Moscow, 97 pp., Yale University Press, New Haven, (1960) cloth,* **$4.75.**

The search for new antibiotics goes on with an increasing intensity. What was mainly an empirical approach is slowly being transformed by the application of scientific principles. Dr. Gause sets forth these principles, which constitute the subject matter of this volume, as: a general microbiological approach to the geography and ecology of microorganisms producing antibiotics; early classification of microorganisms in the screening program, which, if properly used, can considerably improve the search for new chemical substances; development of new test organisms for rapid detection of specific selective inhibition of some biochemical mechanisms, as illustrated by the search for potential anticancer products. This is Trends in Science, 2.

The Strategy of Desire, *by Ernest Dichter, 314 pp., Doubleday & Co., Inc., Garden City, N. Y., (1960), cloth,* **$3.95.**

The Strategy of Desire—the first eloquent answer to Vance Packard's "The Hidden Persuaders"—presents an intriguing reply to the questions raised about the value and justification for the science of motivation. The author, with 25 years of practical experience in motivational research, is the most widely quoted exponent of the study of emotions. Here he tells how social science has been applied in both government and business, and puts forth his own challenging conclusions. He believes that human desires are alterable, that the often disturbing recognition of our illusions is the first step in human progress. Anyone involved in teaching, in political leadership, in raising children, or in the world of selling will find Dr. Dichter's discussion of the strategy of human desires a rewarding pursuit. Our masking of our behavior, our "emotional" reasoning, the methods of researching human emotion, the "soul" of things—the qualities we feel in objects such as cars, furs, even cigarette lighters—are among the fascinating studies described.

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Perfumer's Shelf

Banking Attar

The Bulgarian Government has deposited 1,100 pounds of attar of roses at a London Bank.

Bulgarian sources described the deposit—valued at $840,000—as a "normal commercial practice."

The attar, used in making perfume, is often put up as financial security, the sources said. The attar is at the Moscow Narodny Bank, a principal Communist finance house for East-West deals. The bank is in London's financial district.

Informed trade sources suggested the attar was being used in place of gold, in view of Bulgaria's £1,000,000 ($2,800,000) trade deficit with Britain this year.

They said Bulgaria had used attar of roses as financial security with banks in the United States, France and Switzerland. This was said to be the first such transaction in London.

Britain buys only about sixty pounds of attar of roses every year. It was assumed that most of the present Bulgarian deposit would eventually be re-exported.

Lemon and Orange Oils

The citrus oils are natural flavoring products made up of numerous constituents which give the characteristic odor and flavor associated with the respective fruits. The compounds which give them their desirable flavor characteristics are aldehydes, ketones, esters, alcohols and terpene hydrocarbons.

In addition to the constituents that contribute flavor, citrus oils also contain certain dissolved solids, commonly called stearoptenes, and coloring matter. The solids that are found in orange and lemon oil are coumarins, sterols, paraffin hydrocarbons, flavonoids and high molecular weight waxy esters. The natural coloring material in orange oil is composed of carotenoids and a minor amount of certain colored flavonoids. Lemon oil, apparently, does not contain the flavonoids.

While orange and lemon oils contain a delicate blend of natural constituents, their exact composition is dependent upon such cultural variables as variety, soil, growing temperature and humidity.

So sensitive is the lemon fruit to environmental changes that the citral content of the oil varies considerably between fruits grown in coastal, intermediate valley and desert areas. In the oils from desert-grown lemons, the total citral content runs generally lower than in oil from coastal areas, but the ratio of citral to total carbonyl is higher. Further, an inverse relation exists between citral content and optical rotation, with coastal lemon oils giving lower rotational values than desert oils.

With respect to the natural surface wax found on lemon fruits grown in the desert and the coastal areas, there is a quantitative difference and probably also a qualitative difference. The amount and nature of the surface wax, in turn, can affect the wax content of the extracted oil.

Varietal differences, too, are involved in the physicochemical properties of lemon oils. Eureka and Lisbon lemons grown in the same general area produce oils differing in their content of such constituents as citral, total carbonyl, alpha and beta-pinene and gamma-terpinene, but the effect of environmental differences produces greater variation in the composition of the lemon oil than the relatively small quantitative differences found between the two varieties.

While the individual flavor constituents contained in orange oil differ from those of lemon oil, they do fall into the same general classification of chemical compounds. In orange oil, such aldehydes as nonanal, decanal, undecanal and dodecanal are the most dominant flavoring compounds and they replace the citral which characterizes lemon oil. Minor amounts, however, of citral (about 0.1 per cent of total carbonyl) are found in California orange oils. Whereas an appreciable amount of beta-pinene is found in lemon oil (about 18 per cent of the hydrocarbons), much less (about 2 per cent) alpha-pinene is present. In orange oil, considerably smaller quantities of the pinenes are found, with alpha-pinene occurring in greatest amount along with trace quantities of beta-pinene. Although lemon oil contains gamma-terpinene, fresh orange oil is essentially free of it.
—*P. & E.O.R.* vol. 51, p. 421, 1960.

Laurel Berry Oil

Laurel berries or Sugandh Kokila, as they are called in Hindi, are the fruits of the plant *Laurus nobilis* (family: lauraceae). The plant is cultivated in many temperate and warm parts of the world, specially in Southern Europe, around the shores of the Mediterranean Sea and India.

Sugandh Kokila has long been used in Indian medicine and perfumery. The berries have also been recognized as a source of fat, but their essential oil does not appear to have received any significant attention in the past. The essential oil from the leaves of this plant, distilled in various parts of Europe, has been studied by many research workers. So far the following components have been identified in the essential oil from the leaves: α-pinene, β-pinene, α-phellandrene, cineole, α-terpineol, geraniol, linalool,

esters of these alcohols with acetic, valeric and caproic acids, eugenol, eugenol acetate, methyl eugenol and acetic, isobutyric and valeric acids.

The essential oil from the berries was first examined by Bruhl and Muller, who obtained it in 1 per cent yield. They identified α-pinene, cineole and lauric acid among its components. They also reported the presence of some unidentified alcohols, ketones and hydrocarbons. The oil from berries growing in India does not appear to have been studied earlier. Hence it was considered worthwhile by I. C. Nigam, G. N. Gupta, and D. R. Dhingra (*P. & E.O.R.* 51: 351, 1960) to examine the oil. Results of some preliminary work on a small sample of oil were reported by the authors earlier. For the present investigation, oil was obtained in 4.1 per cent yield. The presence of lauric acid could not be detected in the oil. The presence of α-pinene and cineole was confirmed. In addition, β-pinene, citral, terpineol and methyl cinnamate and free cinamic acid, were also identified. Caryophyllene also appears to be present. Some sesquiterpene hydrocarbons were isolated but could not be characterized.

Perfuming Depilatories

The need for a worthwhile deodorant for hydrogen sulfide has not been obviated by the advent of the newer type of cream depilatories, odorless in themselves, since hydrogen sulfide and some ammonia are always formed during the process of decomposing superfluous hair.

Although the disagreeable odor of sulfide depilatories can be covered to a certain degree if they are carefully packed and stored, it is very difficult to cover the smell during application. Perfumes must be carefully selected and should consist only of those which are penetrating enough to tone down the smell of hydrogen sulfide according to V. Vasic (*Manuf. Chem.* 31: 343, 1960). Rose types are suitable where alkaline sulfides are concerned, but there is no objection to using violet scents or another flowery note. Similarly, the fresh hay smell of coumarin, or even a fruity effect, might be well worth consideration.

Stability is a difficult problem. The perfume used will have to withstand contact for a prolonged period with a medium which is powerfully alkaline (*p*H 10-12.5) and powerfully reducing, and the possibilities of interaction under these circumstances are almost unlimited.

Most compounds can be ruled out in the compounding of a perfume for an alkaline sulfide depilatory because of the ease with which they undergo reduction, hydrolysis, thiosubstitution and so on in the presence of alkaline sulfides.

Practically all esters will be quickly hydrolyzed with the formation of metallic salts and free alcohols. Whether they are useful or useless will depend to some extent on the product of hydrolysis. If these are virtually odorless, as with benzyl acetate or methyl salicylate, they are not worth consideration. Benzyl acetate, for instance, will lose its odor completely in a few days.

Alcohol, in turn, are apt to form mercaptans which have a disagreeable odor, this process, however, taking place very slowly. Geraniol and citronellol are comparatively stable and may be used for perfuming.

Aldehydes, with the exception of phenylacetaldehyde and citral, are also comparatively stable. Aldehydes as a class do not form mercaptans, but they can undergo changes, such as an aldol condensation, to product alcohols which, in turn, may form mercaptans. Alpha-amyl cinnamic aldehyde is suitable, and also hydroxycitronellal.

Nitro musks, such as musk ambrette, oxidize sulfydryl groups and the depilatory activity of the formulation will be lost after the perfumed product is shelf-tested.

Ketones (methyl, acetophenone, ionone) and phenol ethers may be used within limits, but phenols are useless in alkaline media. Methyl acetophenone is stable and has good covering propreties, but its odor is less agreeable for practical purposes.

Beta-naphthyl methyl ether, beta-naphthyl ethyl ether, diphenyl oxide and diphenyl methane are among a few aromatic chemicals which are suitable for covering the odor of depilatories containing alkaline sulfides, and they do not react chemically with the active ingredients.

The choice of perfume compounds for thioglycolate depilatories is not nearly as limited as in the case of the sulfide depilatories because thioglycolates are less likely to react with perfume ingredients than inorganic sulfides. However, the high alkalinity of thioglycolates presents unlimited possibiliites for reaction with perfume ingredients. Aldehydes in perfumes are particularly susceptible to attack from thioglycolates.

Synthetic materials comprising ethers, hydrocarbons, ketones and some alcohols offer possibilities for thioglycolates; so do natural essential oils rich in such substances. Citronella, cedarwood, petitgrain, patchouli, sandalwood, rose geranium and vetivert oils are suitable for thioglycolate depilatories.

Only powerful perfume materials, such as diphenyl oxide, camphor, eucalyptol or the ionones, are capable of dominating the odor of sulfide preparations. Caraway oil very satisfactorily covers the odor of hydrogen sulfide by entering with it into a crystalline formation without materially decreasing the efficacy of the depilatory. Another satisfactory covering agent is oil of cedar leaves, but unfortunately its odor is generally not liked for depilatories.

Petitgrain oil adds an agreeable note to the perfumes for depilatories and is quite useful. Perfume compositions based largely on ionones and the rose alcohols, such as geraniol and citronellol, have proved to be very satisfactory for perfuming thioglycolates, and some of them have shown excellent stability.

It is possible to subdue the basic depilatory odor by using a polycyclic musk, which has a tendency to depress the unpleasant odor, allowing the fragrance blend to have a dominating effect.

When removing the depilatory a certain burnt odor remains which may be covered by suitable addition of patchouli, vetivert and sandalwood oils to perfume composition.

It is useless to attempt to cover the disagreeable odor of a depilatory by excessive addition of perfume. Many perfumery materials are more likely to cause deterioration than an improvement of the odor if used in excess.

The amount of the perfume compound in sulfide depilatories depends on the quality of sulfide, but usually 0.5 to 2 per cent is sufficient.

Thioglycolate depilatories may be perfumed with less perfume and up to 1 per cent is required.

Trade Literature

Fatty Acids

Emery Industries Inc., Carew Tower, Cincinnati, Ohio, has published a new price list of its fatty acids, No. 129. Changes from List No. 128 are marked with an asterisk.

Kettles with Agitators

A new bulletin, LM-200, on jacketed kettles with center line scraper agitators is available from Lee Metal Products Company, Inc., Philipsburg, Penna. Drawings and specifications on a series of seven stainless, nickel, or monel kettles for both stationary and tilting types are included.

White Oils

White oils, petrolatums, and ointment bases are detailed in a new four-page technical bulletin published by the Pennsylvania Refining Company, Butler, Penna. The bulletin, No. 607, contains specifications and other data on 15 regular grades of U.S.P., N.F. and technical Penn-Drake white oils; on 14 grades of U.S.P., N.F. and industrial Penn-Drake petrolatums; and on a series of three Penn-Drake ointment bases. It reflects recent changes in the U.S. Pharmacopeia XVI, and the National Formulary XI, and also includes information on the company's custom refining service.

Griseofulvin Administration

The Medical Department, Ayerst Laboratories, 22 East 40th St., New York City 16, has issued two booklets on the administration of the new oral antibiotic, griseofulvin. The first, for patients, is entitled, "How to get the full benefit of your treatment for fungus infections." The other, "Griseofulvin Dosage Guide," is for physicians, and lists the fungus infections that respond to the therapy, the causative organisms, clinical features, proper dosage, and suggested duration of treatment, as well as ancillary measures.

Industrial Chemicals—Methanol

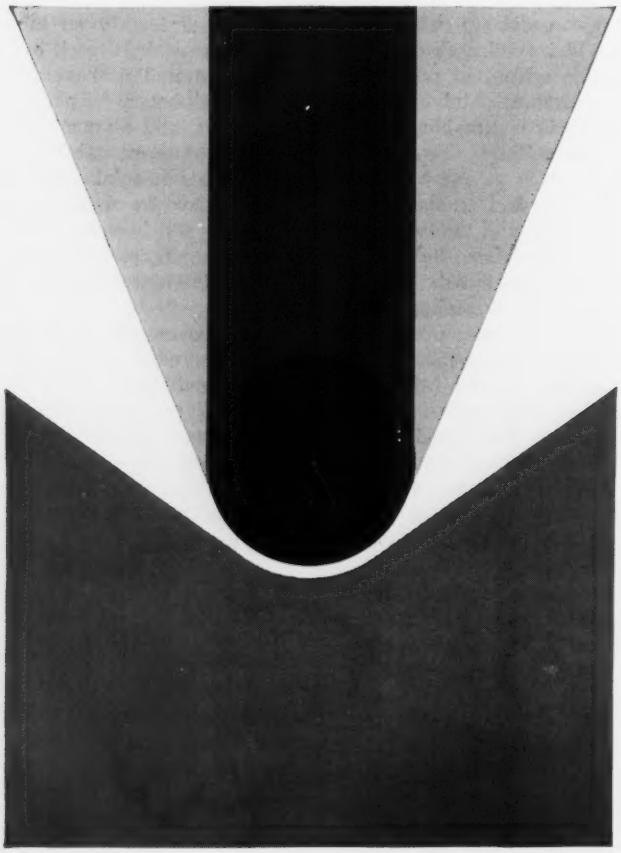
A new price list of its industrial chemicals has been issued by Commercial Solvents Corporation, 260 Madison Ave., New York City 16.

Also available from the company is a 32-page booklet giving specifications, technical data, handling and storage information, toxicity, uses, and test methods of its snythetic methanol. Tables, drawings, and an index are included.

Silicones

How Silicones Work for the CPI, is the title of a manual describing silicones for the chemical process industries, which is now available from the Dow Corning Corporation, Midland, Mich. It cites how various forms of silicones help design, process, and maintenance engineers expand capacity, cut costs, lower maintenance, reduce downtime, increase reliability, and improve job conditions. The illustrated eight-page booklet is of interest to engineers and chemists in the chemical and petro-chemical industries.

(*Continued on page 413*)



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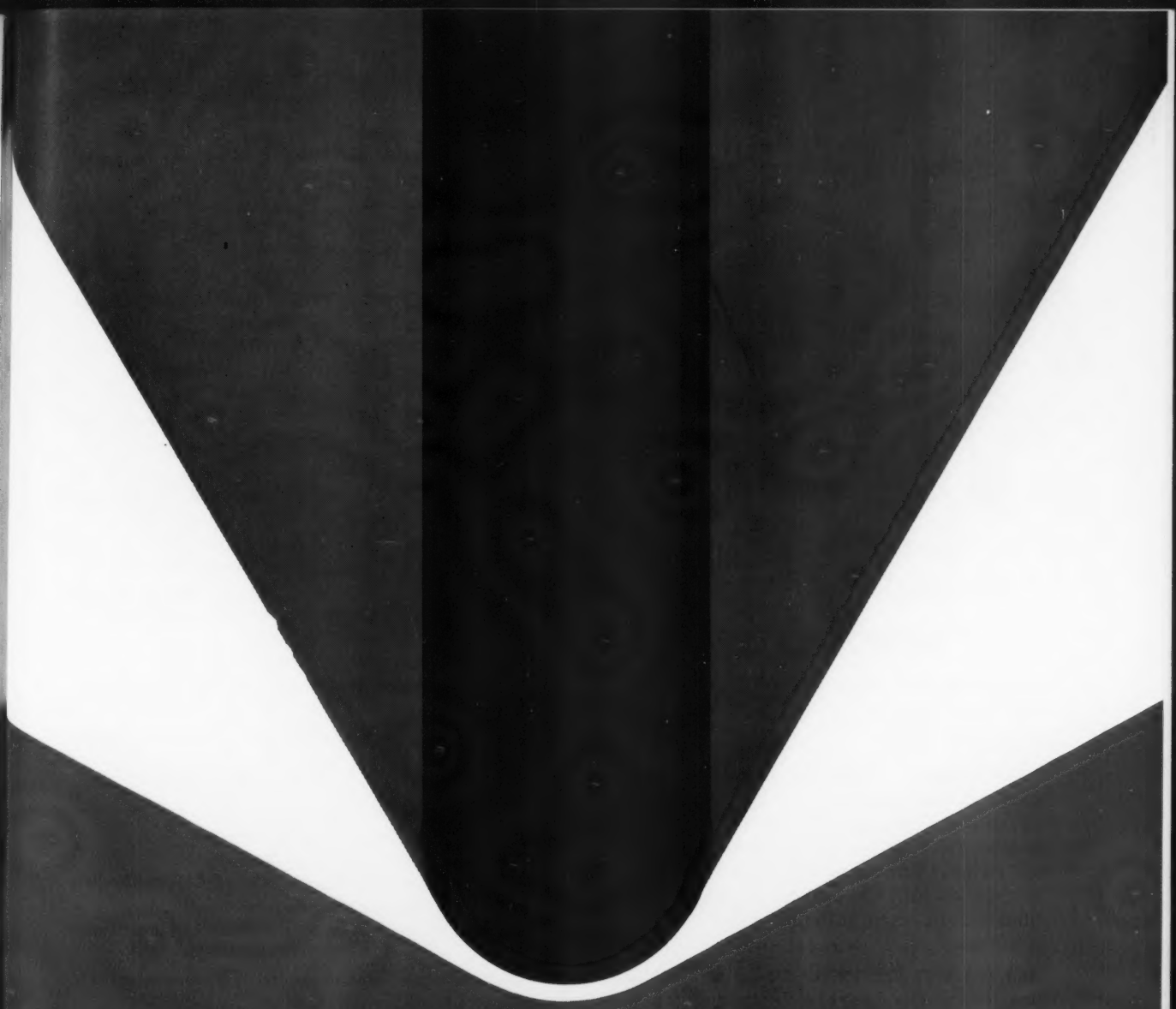

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(*Continued from page 390*)

2,946,783—Scientific and Ind. Research Council (India)—Costus Root Oil.

2,946,784—Syntex—Cyclopentanophenanthrenes.

2,946,785—G. D. Searle—Epoxy Estratrienes.

2,946,786—G. D. Searle—Oxo Hydroxy Epoxycardenolides.

2,946,787—G. D. Searle—Carboxyethyl Halo Hydroxyandrostenone Lactones.

2,946,788—VEB (Germany)—Dihydro Thiazines.

2,946,789—W. R. Grace—Bis Morpholinium Salts.

2,946,790—W. R. Grace—Tetrahydropyridaziniums.

2,946,791—G. D. Searle—Diarylalkyl Tetrahydropyrimidines.

2,946,792—Geigy—Phenazines.

2,946,793—Abbott Labs.—Carbinol Amines.

2,946,795—W. R. Grace—Apomorphinium Salts.

2,946,796—W. R. Grace—Salts of Ergot Alkaloids.

2,946,797—W. R. Grace—N-Aminotetrahydroisoquinolinium Salts.

2,946,798—W. R. Grace—Lupine Hydrazinium Compounds.

2,946,803—Abbott Labs.—Furfuryl Imidazoles.

2,946,804—Abbott Labs—Imidazolyl Diphenyl Carbinol Salts.

2,946,807—Olin Mathieson—11-Oxygenated 1-Dehydrotestololactones.

2,946,809—G. D. Searle — 17α-Alkynyl-17β-Alkanoyloxy-4, 6-Estradien-3-Ones.

2,946,810—Schering—Formyloxy Steroids.

2,946,812—Olin Mathieson—Steroids.

2,947,664—Geschickter Fund—Salts of Chloro Diethylamino Methylbutylamino Quinoline.

2,947,741—E. A. Ferguson, Jr.—Isobebeerine Nicotinate.

2,947,742—Bristol-Myers—Amino Trifluoromethyl Dipyridyl m-Benzenedisulfonamide.

2,947,743—Hoffmann-La Roche — Substituted Dimethoxypyrimidines.

2,947,744—G. D. Searle—Benzithiazines.

2,947,745-7—Smith, Kline & French—Substituted Phenoxazines.

2,947,749—Am. Home Products — Morpholyl Benzhydrol.

2,947,751—E. Merck (Germany)—Dihydroergotamine Diacetate.

2,947,752—W. R. Grace—Aminococainium Compounds.

2,947,753—Merck—Carboalkoxypiperidines.

2,947,754-5—Wallace & Tiernan — Substituted Pyridones.

2,947,757—Francisco Vismara (Italy)—Hydroxy Tryptamine Intermediates.

2,947,758—G. D. Searle—Alkylindoles.

2,947,762—Syntex—Pregnene Diones.

2,947,763—G. D. Searle—Estratriene Ols.

2,947,778—G. D. Searle—Substituted Octahydrophenanthrene Carboxylic Acids.

2,947,780—Int. Flavors & Fragrances—Cyclohexene and Hexadiene Carboxaldehydes. •

Readers' Questions . . .

Removing Stains From Teeth: *Is there an effective, simple, and safe preparation for removing tartar, tobacco, and similar stains from teeth, and could you suggest methods of formulating such a product?* BOSTON

That combination of effective, simple, and safe is not easy to reach. I know of solutions that are simple and certainly effective: dilute hydrochloric acid or some other strong or moderately strong acid such as citric, tartaric, malic acids dissolved in water. When applied with a small cotton applicator to the stained areas they will immediately remove moderate stains and reduce the size and intensity of heavy stains. Nevertheless, these solutions are not safe for general use, since they also indiscriminately attack tooth enamel and probably leave it somewhat more succeptible to carious attack. The professional dental approach to tooth cleaning, as you know, consists of scraping with a sharp tool to remove heavier tartar deposits, followed by mechanical brushing with several grades of pumice powder. This treatment is effective, simple, and safe in skilled professional hands, but not otherwise. The problem is simply one of devising a stain remover that will be safe even if used improperly by the lay consumer. I imagine that a possible approach would lie in determining the difference in solubility product, if any, between the dense calcium phosphate of tooth enamel and the possible more porous and more soluble deposits constituting tartar. With this information, a buffered acid system might be devised that would show a marked preferential action on the more soluble stain without substantially attacking the enamel. A resin thickener should be included in the solution to increase viscosity and prevent the liquid from flowing onto areas that do not require treatment. In another means to the end, alkaline sequestering agents with an affinity for calcium ions might be useful. These would have to be buffered down to an acceptable alkalinity, but, if effective at all, might be gentle enough in action.

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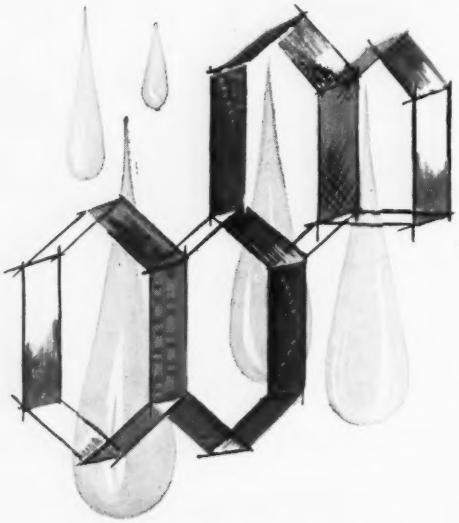

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(*Continued from page 315*)

phy of muscles, modifications of facial contour and loss of subcutaneous fat. The nails age rather strikingly in some people. The manufacture of hard keratin becomes more slovenly with resultant brittleness, ridging, flaking, and distortion.

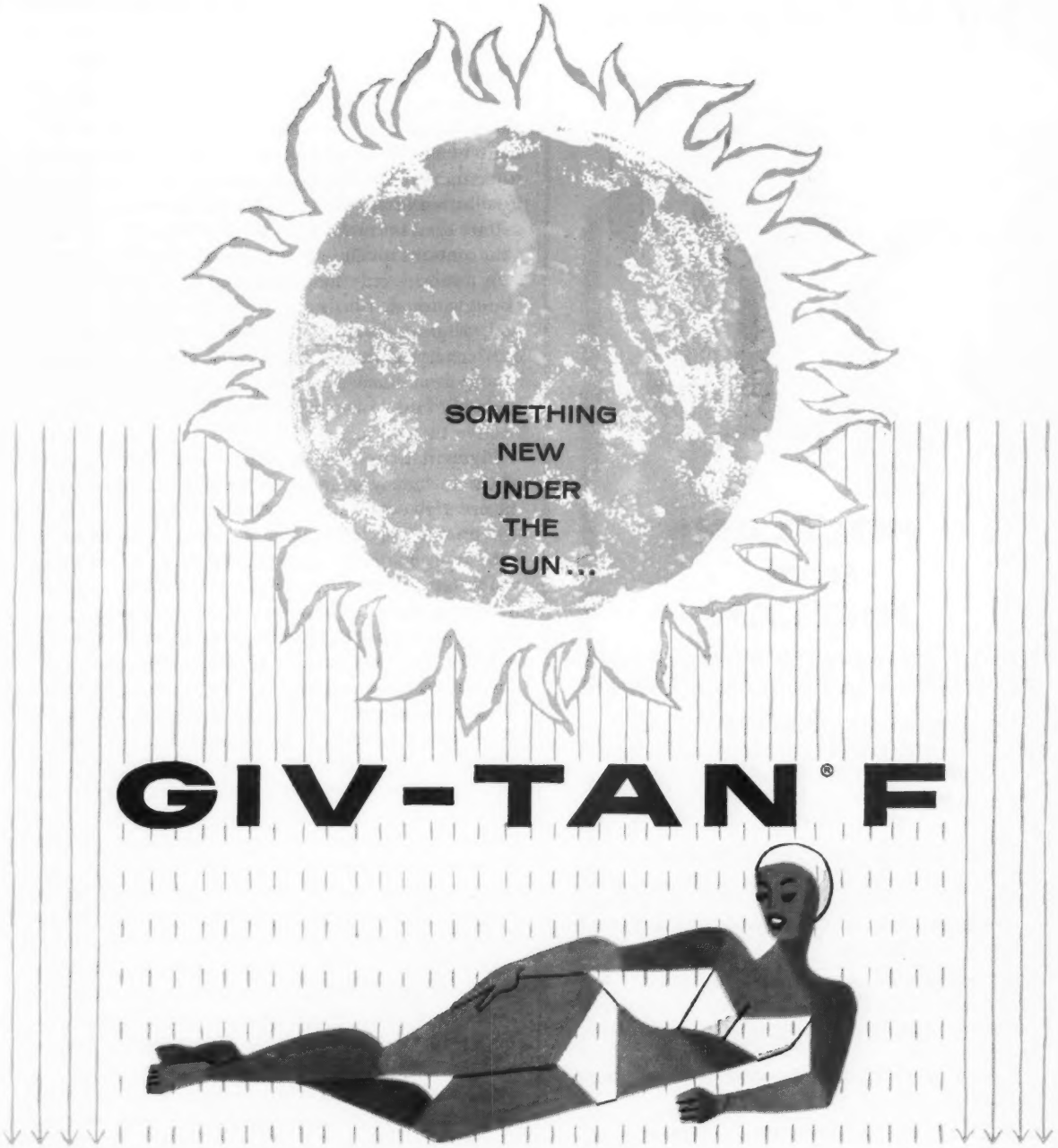
The stratum corneum of senile skin reflects abnormalities of keratinization which are of much clinical significance. In general, the horny layer of the older person is thinner, though some areas show hyperplasia in the form of marked keratotic thickening. Visible scaling of the skin is usually more marked in an elderly person than in a young individual. This would seem to be due in part to decreased sebaceous secretion and possibly to qualitative or quantitative changes in the lipids within the stratum corneum. The water content of the stratum corneum is probably lower in the older person; this may well be related to changes in the surface lipids and to a resultant decrease in its water-holding capacity. All of this results in greater susceptibility to dryness, chapping, and fissuring.

Tension and elasticity differ greatly in young and aged skin. Appreciably less rebound ability, or elasticity, occurs in the older skin. The old skin, poor in elastic fiber supply, has a low initial tension. While showing little resistance to slight stretching, aged skin expands relatively less than the young skin when force is increased and collagen fibers are stretched. Topical applications of estrogenic hormones do improve the resiliency of the aged skin considerably. The steroid treatment was found to effect a redevelopment of elastic fibers, disappearance of collagen fragmentation, and an increased number of both capillary blood vessels and epidermal cell layers.

Vigorous stretching of the skin leads to deformation of the collagen bundles, and the angles of fiber-crossing change. Intially, there is little resistance to stretch because, for a while, the stretched fibers are not jammed by cross-compression. As stretching progresses, there is a jamming of fibers, whereby the resistance to stretch increases. A dense network of fibers with a strong anchoring between them has a greater tensile strength than a loose network in which fibers may glide along one another.

Another important factor in tensile strength is the water content. It influences tensile strength in two ways: first, fluids have no tensile strength, and therefore, the greater the water content, the smaller the tensile strength; second, water facilitates the slipping of fibers along one another and thereby decreases tensile strength. In this interpretation, the low tensile strength of infantile skin is caused by its high water content and by the looseness of its collagen network. With advancing age, the fibers become progressively matted and intertwined until compact bundles are formed in the adult.

Loss of elasticity in the dermis may be construed as a lesion of elastic tissue of the papillary layer



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which, in young persons, consists of a very delicate network of fibers that are calcium-free. In senile elastosis, coarse elastic tissue accumulates. Unlike the elastica of old arteries, it is basophilic and does not show evidence of calcification. The abnormal material in the skin in senile elastosis is related chemically more closely to elastin than to collagen, but appears to contain more mucopolysaccharide, probably in a low degree of polymerization, and more chondroitin sulfate than normal elastin. While homogenized baby skin contains much jelly and few fibrils, an old man's skin possesses only long, clean, straight fibrils. In the young animal, fibrils are probably in thin bundles and, as ground substance is removed, the little bundles come together mechanically to form big ones. Mucopolysaccharides, as well as other proteins, are probably laid down early in the development of connective tissue.

Pigmentation disorder reflects the lack of ability of the melanocytes to lay down melanin granules in an orderly, even fashion. Freckles and "liver spots" are prominent. In many areas, considerable depigmentation may be noted, sometimes due to gross, visible atrophy of the skin. In response to processes in which there is hyperplasia of the epidermis or excess formation of epidermal tissue, such as in seborrheic keratoses, senile keratoses, and basal cell epitheliomas, excessive amounts of pigment may be formed. Changes in color due to disturbed vascular states may be striking. In general, the vascular reactions of the aged skin tend to be slowed down and less responsive to external stimuli.

It may be shown experimentally that the percutaneous absorption of materials coming in contact with the skin is significantly reduced in old age. This may be due in part to the atrophic changes of the pilosebaceous unit through which such substances are chiefly absorbed. It is a clinical fact that severe sensitization reactions to contactants are less commonly encountered in the older patient. In addition to lowered absorption, there may be a decreased capacity to form antigenic conjugates in the skin, or to form circulating antibodies.

Histological changes appear minor in the early facial folds of young individuals but, with their persistence, there occurs in these wrinkled areas epidermal atrophy with loss of pegs and varying degrees of loss of the normal pattern of the underlying dermal collagen, such as a rigidity with homogenization and increased density of the bundles. This atrophy of epidermis occurs only in certain regions of the body —the dorsum of the hands, the face, and, at times, the genitals; it does not occur on the upper arm, on the back of the foot, nor in the skin of most of the rest of the body. In elderly persons the superficial dermis tends to become increasingly basophilic as a result of an elastosis in which the elastic fibers are abundant but degeneratively altered. The elastic fibers in deeper portions of the dermis show abnormal

fragmentation, aggregation into irregular clumps, thickening and roughening of outlines, and degenerative changes, including loss of nuclei.

The greying of hair is the consequence of loss of melanin pigment and the failure of the follicle to replenish such lost pigment.

Skin diseases have a definite age incidence. In general, infections are more common to the younger individual. The dermatoses of the newborn include acute inflammation of the sweat glands (miliaria rubra) or "prickly heat" (miliaria papulosa), fat necrosis of the newborn, dry skin (ichthyosis), toxic erythema, drug eruptions, pyogenic infections, dermatitis exfoliativa, erypsipelas, and early prenatal syphilis. Infantile jaundice (icterus neonaturum) might be classified as a cutaneous disorder. Most moles (pigmented nevi) are present at birth or appear shortly thereafter, as do blood tumors (hemangiomas).

In infancy and childhood, the main dermatoses include blister formation (epidermolysis bullae), dry disseminated pigment spots (xeroderma pigmentosum), juvenile xanthoma (yellowish new growth of the skin occurring as nodules). Histologically the lesions consist of connective tissue undergoing a partial fatty degeneration, urticaria pigmentosa (burning or itching, brownish-red or yellow wheals or hives), fungus infection of the scalp and smooth (glabrous) skin, infantile eczema and neurodermatitis, warts, napkin eruptions, and pyogenic infections.

At puberty, seborrhea, acne vulgaris, seborrheic dermatitis, and hyperhidrosis (excessive sweating) are found.

In the third decade of life, the neurodermatoses most commonly have their onset. The incidence of fungus infections of the feet increases with the age of the patient, up to adult life. Rosacea ("whiskey nose") and lupus erythematosus have their onset at about 30 years of age.

The more common forms of dermatitis encountered in infancy and young adult life are uncommon or greatly altered in the aged. There is decreased frequency of severe contact dermatitis in the aged. Ordinary seborrheic dermatitis sometimes becomes less marked in aged people who have had the condition intermittently for a lifetime, possibly because of decreased sebaceous activity and changes of the surface lipids.

Dermatitis related to peripheral vascular disturbances is common in aged persons; stasis dermatitis is the leading example. Nummular dermatitis is more common in persons of middle adult life to old age. Atopic dermatitis in the classic distribution seen in young adults is practically unknown in old age. It may, nevertheless, remain as an extremely persistent dermatitis of varying pattern, sometimes localized to the hands, but occasionally generalized. Localized neurodermatitis is common in the aging patient.

(*Continued on page 406*)

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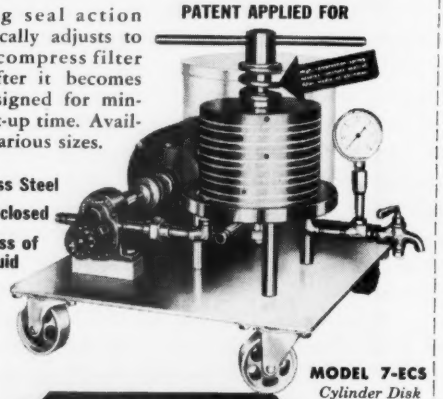

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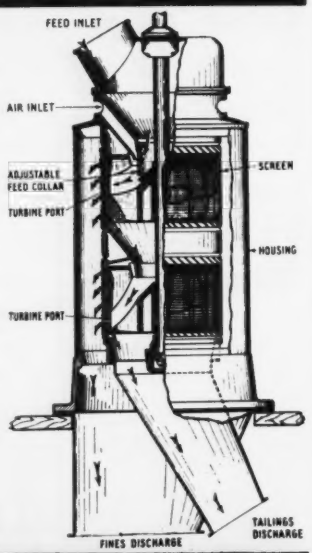

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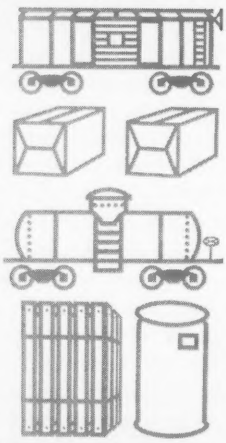

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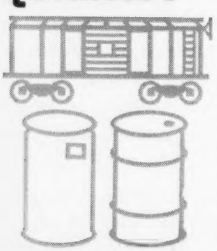

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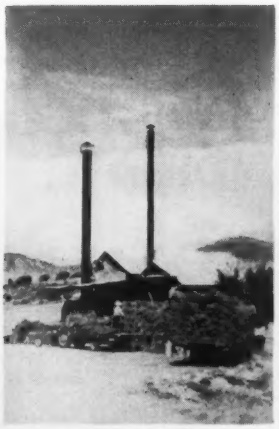

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(*Continued from page 403*)

Probably the single most common form of localized neurodermatitis in adult and older patients is itching of the perianal and vulvar regions. More extensive forms of neurodermatitis are encountered, including a widespread unusual eruption known as chronic discoid and lichenoid dermatosis, or an extensive very thick papular lichenification, sometimes of extensive areas on the arms and legs.

The senile skin is extraordinarily subject to "itchiness," with or without any evidence of inflammatory reaction. The dry, slightly chapped skin may become very pruritic following tactile and other stimuli that would ordinarily go unnoticed. A draft of air on undressing, a wisp of scratchy material on the skin, or a mildly stressful situation may induce a paroxysm of itching. This sometimes has a peculiar burning quality which is highly uncomfortable.

By far the most serious and medically important dermatitis encountered in the aged person is that in which dry erythematous, moderately scaling plaques, or even generalized exfoliative dermatitis, develop for no apparent reason. In some older patients, extensive or generalized exfoliative dermatitis may have had its genesis in seborrheic dermatitis or psoriasis. There are also forms of generalized erythema and scaling, with or without thickening of the skin, which have been characterized by a variety of terms but of which almost nothing is known etiologically. In such patients, it is often impossible to detect any systemic abnormality in the early phases of the disease. The dermatitis may be completely disabling by reason of uninterrupted severe itching, marked exfoliation, and decreased capacity for adaptation to environmental temperature changes and to the systemic sequelae of significant prolonged protein losses through the loss of keratin.

Pigmentary changes are common in old age and have been mentioned. Vitiligo does not ordinarily arise in persons past sixty, but may reach significant levels of cosmetic disfigurement and intolerance to sunlight at this time. The localized variations in pigmentation and depigmentation in the senile skin are often striking and sometimes difficult to assess accurately.

Various keratotic diseases frequently reach full flower in old age. Previously mild ichthyosis (dry skin) almost always becomes more pronounced. The congenital abnormality of keratosis of the palms and soles may become drier, thicker, and more fissured. Calluses and corns achieve greater clinical significance, particularly if they become ulcerated through trauma or overuse of keratolytic topical remedies. Keratotic lesions of the external ears, of varying types and often painful, are increasingly common with age. In some persons, increased keratinization of plaques of psoriasis on the palms and soles becomes evident, or keratotic plaques may occur after the menopause.

Acute bacterial infections, at least of the superficial

type, do not occur with great frequency in the aged. When they do, there is a greater tendency for them to produce significant ulceration. Evidences of chronic superficial disturbances of the bacterial flora are common, especially in intertriginous areas. Recurrent cellulitis, with permanent resultant lymphedema, may reach its height in old age. Ulcerative processes of all types are common in the aged skin.

All types of tumors, benign and malignant, occur with greater frequency in the aging skin. The most common skin tumors of older patients are undoubtedly seborrheic keratoses, which may sometimes be seen in profusion in persons of thirty, but which are almost always demonstrable in patients of more than seventy. Basal and prickle cell epitheliomas are the next most common group, the former being seen in areas with the greatest number of sebaceous glands. Though malignant melanoma begins somewhat less frequently in the aged, it is by no means a respecter of age, except for its rarity prior to puberty.

We are now on the threshold of correlating the data on the histological, chemical, and physical studies of connective, dermal, and epidermal tissues. We may soon see breakthroughs to relationships between skin aging and measurable change. Warnings may become available in infancy of coming pathology. Understanding may result from the striking relationship of aging to cancer.

PERMANENT HAIR DYES

(*Continued from page 317*)

HAIR DYE BASE
Clear Type

Propylene glycol	10.0%
Cetyl alcohol	2.0
Isopropyl alcohol	10.0
Oleic acid	30.0
Polyoxyethylene sorbitan monooleate	10.0
Water	28.0
Ammonia, 26° Be	10.0
	100.0%

as cetyl alcohol. Invariably they require considerable manipulation to assure just enough solubilization of the cetyl alcohol and other insoluble substances to keep them clear in the bottle, while simultaneously satisfying other important requirements. A solubility equilibrium exists which is upset by the water content of the six-volume peroxide.

In a patented method, the incompatibility of anionic with cationic material is exploited to produce a novel hair-dye thickening agent. The agent is prepared by melting 284 parts of stearic acid on a water bath. To this is added, with stirring, 667 parts of the distearylamide of dihydroxy-diethylene triamine. The mixture is heated until clear; upon cooling it forms a mass with a waxy consistency.

Take 3 parts of this mass and dissolve in 33 parts of isopropyl alcohol with the aid of heat. Add 67

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parts of a hair-dye solution. On mixing 1 volume of this solution with 2 volumes of 4.5 per cent hydrogen peroxide, a product of creamy consistency is produced. Just enough isopropyl alcohol is used to prevent the premature formation of a gel.

Another example given in the patent involves the reaction of equimolar proportions of oleic acid and the (cationic) oleylamide of diethyl ethylenediamine. The resultant liquid is used as a 60 per cent solution in isopropyl alcohol for thickening hair dyes which contain soaps. Note that in both examples the cation-active compounds should be in the form of free amines rather than the quaternary ammonium salts.

The color vehicle must have good dye solvent properties so the intermediates will dissolve with rapidity under agitation, preferably at room temperature. Poor dye solubility is frequently found in otherwise acceptable base formulations, which gives some indication of the problems encountered in development.

Ethyl and isopropyl alcohol, hydro-alcohols, ammonia, glycerin, and propylene glycol serve in various combinations to solubilize the dye intermediates. Synthetic surface-active agents and soaps may function as auxiliary solvents. It is most important that the dye mixture be ground very fine to promote rapid solution, since coarse particles tend to resist dissolution even after prolonged mixing.

Regardless of the care exercised in manufacture, the dyes may, in time, produce a slight sediment. This will escape detection if brown bottles are routinely used for packaging. Generally, sedimentation is most apparent in the darker shades, where a higher percentage of dye is used.

The organic solvents not only function in dye solubilization but also are used to promote color absorption. Isopropanol and ethanol are frequently employed for this purpose and for achieving proper fluidity of the bottled product. As couplers, they are advantageous in providing sparkling clarity of the dye base through increased solvency. The glycols usually tend to retard color absorption, but this does not necessarily preclude their use.

The amino dyes work best in an alkaline medium, and ammonium hydroxide is universally accepted as best for hair dyes. It is an effective hair softener and leaves no residue. The process of hair bleaching involves the use of hydrogen peroxide and ammonium hydroxide; oxidative dyeing is achieved by oxidizing with hydrogen peroxide, an ammoniacal dye solution. These processes have been combined to produce the modern bleach-dye preparation. Since it is ncessary to bleach very rapidly, the alkalinity must necessarily be higher than with the older type of dyes, which required a pre-bleach.

The alkalinity of modern hair dye ranges from *p*H 9 to 10 when diluted with the required amount of six-volume hydrogen peroxide. The *p*H of the packaged product is not usually considered significant,

except from the standpoint of quality control. The *p*H is not fixed and may vary somewhat from shade to shade throughout the entire series.

Variations are frequently encountered when testing the *p*H of peroxide-diluted hair dyes. With conventional electrodes, the user may experience poor reproducibility, erratic behavior, and large errors. The use of a sleeve electrode and frequent recalibration with an alkaline standard was found to give excellent results, particularly with the more viscous preparations.

As the alkalinity of the dye base is rather high, all products contemplated for use in this work should be carefully evaluated for possible alkaline hydrolysis. Under these conditions, very few perfume compounds will remain stable. Even fewer are capable of masking or repressing the ammoniacal odor.

To prevent premature oxidation and darkening of the dyes during manufacture, packaging, and shelf life, an inorganic reducing agent is essential. Sodium sulfite is by far the most popular antioxidant. It was once believed that this compound helped repress the irritating oxidation products of p-phenylene diamine. However, this reducing agent is promptly oxidized to the sulfate by hydrogen peroxide, and cannot affect diamine action.

As a rule, the darker shades require more sodium sulfite than the lighter shades. Despite the presence of sodium sulfite in sufficient amounts for adequate preservation, slight tinting of the dye base may occur, particularly with the browns, reds, and blacks. All the shades should, however, possess good clarity in a properly formulated product. Tinting is not to be confused with the more intense discoloration ascribable most frequently to excessive exposure to air during manufacture, insufficient bottle fill, and inadequate preservation.

It is feasible to package hair dyes without vacuum or nitrogen equipment, so long as the headspace of the container is kept to a minimum. Air in the neck of the bottle will cause discoloration in a very short time. The amounts of sodium sulfite used vary from 0.2 per cent for the lighter shades to 0.5 per cent or more for the darker shades.

Thioglycolic acid has been used as an antioxidant and patents have been issued on the basis of superior performance to inorganic reducing agents. Mercaptans have also been patented for use as hair dye antioxidants; they form the basis for novel hair dye compositions which do not require hydrogen peroxide.

Sequestering agents have a number of important functions in permanent hair dye manufacture. They are known to serve as antioxidants and to increase the detergency of soaps. Copper and iron will catalyze aerial oxidation of alkaline sulfites, with reduction of preservative properties. These metals also are believed capable of deleterious action on hair dyes, which may result in discoloration and reduced shelf life. Sequestering agents will inactivate these metallic

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ions by combining to form a water-soluble, nonionizable complex.

Probably the most important action of the sequestering agent is to delay the rate of oxygen release when the peroxide is combined with the hair dye. Since hydrogen peroxide is unstable, traces of heavy metals will readily induce decomposition at a rate unfavorable for hair dyeing. This is usually evidenced by foaming or the evolution of heat in the dye-peroxide mixture.

The incomplete oxidation of the dye intermediates could easily alter the desired color shade, and may produce irritating substances. For this reason, some unreacted peroxide should be available at the end of the dyeing operation. This may be assured by the inclusion of sequestering agents in the dye base. These agents are, in general, quite alkali-insensitive but their stability in oxidizing agents is relatively limited. Logically, sequestering agents should be incorporated in the dye vehicle, rather than in the peroxide developer.

Shampoo ingredients and hair conditioners make up the balance of the hair-dye base. The soaps used may be derived from oleic, palmitic, lauric, and coconut fatty acids. They are frequently employed in conjunction with synthetic ionic or nonionic surfactants to provide the necessary foaming, penetrating, detergency, and thickening action.

Certain base compositions are soap-free and require substantially less ammonium hydroxide for *p*H adjustment, because of nonreactivity. With monounsaturated fatty acids such as oleic, partial rather than complete saponification is usually encountered in manufacture. Other than the formation of soaps with fatty acids, all ingredients should be alkali-stable for prolonged periods.

A useful and applicable series of products are the ethoxylated fatty alcohols, which have excellent stability to acids and alkalies. This is characteristic of nonionics of the ether rather than the ester type. The polyoxyethylated fatty alcohols have the oxyethylene chain attached to the hydrocarbon chain by means of an ether linkage.

Conditioners, as in conventional shampoos, are utilized intrinsically for the same purpose in hair dye base. Glycerin, propylene glycol, oleyl alcohol, lanolin, and lecithin are typical products. Since conditioners may help to overcome brittleness and other defects encountered in dyeing and bleaching, the quantities used in certain formulations would startle those engaged in shampoo manufacture. Conditioners must nevertheless be used judiciously, if unpleasant stickiness or drag after final shampooing is to be avoided.

Among the newer conditioners, the anionic protein-based detergents and silicones offer very interesting possibilities in creative formulation. The fatty acid amides of protein hydrolysates are nonirritating, and in the past have been used to prevent hair embrittlement in cold waving. There is evidence that

the amino acids are adsorbed onto the hair; this would seem advantageous.

In a hair dye vehicle, the order of addition of these protein detergents seems to be important. Precipitation will result in some systems under certain conditions, but it can be eliminated completely by determining at which stage of dye base manufacture the protein detergent can be incorporated successfully. There are other possible advantages in the use of these products, for instance, to provide a more even bleaching action.

Silicone oils have already been established for use as hair conditioners. In an oxidation dye base, the silicones may contribute not only to manageability and luster but also to a minimized damaging effect of the alkali. As with any hair conditioner, indiscriminate use may alter the final effect unfavorably, and exhaustive testing is essential.

HOW MANY RETAILERS?

(*Continued from page 313*)

distribution. As has already been pointed out, variations are almost as numerous as the number of companies in the trade.

For some companies, the dominating influences are fashion, prestige, active retail help, trading on a famous retail name, for others, the utmost in mass distribution and availability to the casual or impulse buyer, accompanied by the assumption on the part of the manufacturer of nearly all expenses of selling.

One thing should be noted: a manufacturer of cosmetics and perfumes can hardly escape the image created by his pattern of distribution. Among all the factors that contribute to forming a company image, or a product image—that is, the product itself, its price and its package, the advertising and the promotions, and the company policy—probably nothing, over a period of time, so clearly defines a company image as the kind of store with which it is associated in the consumer's mind.

Therein hangs the tale of some conspicuous successes, and many dismal failures.

MAN-TAN IS PATENTED

(*Continued from page 321*)

Their results indicated that the reaction may be presumed to be one between dihydroxyacetone and the keratin of the skin to give a color similar to that of normal melanin, which is formed from tyrosine by a sequence of oxidative reactions.

They further noted: "The stain on the skin does not appear until three to six hours after application and herein lies one of the difficulties of use, namely, it is not known what has been accomplished until a number of hours after it is done. At this point it

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is too late to undo it."

Comparing several factors they said: "The color is affected by skin thickness; a deeper color being produced in areas of proliferated epidermis such as callouses and warts. Hair and nails are not as easily colored as skin. Stronger solutions and repeated applications however bring about typical color changes."

They summarized an examination of effects on different skin types as follows: "Repeated applications of dihydroxyacetone cause progressive darkening of the skin until a point is reached beyond which no further darkening takes place. This ultimate color varies with individuals. The skin of blonde, thin-skinned individuals generally does not darken as much as thicker-skinned darker individuals. Certain persons of both types seem to resist coloration more than others. Response from person to person is variable. Higher concentrations of dihydroxyacetone produce greater color formation. The same deep color may be achieved by repeated applications of weaker solutions."

Indicative of the great interest in this field are two patents recently issued, one for the production of dihydroxyacetone, the other for a method of coloring the skin. Samuel R. Green has been issued Patent No. 2,948,658, assigned to Baxter Laboratories, Inc., for the production of dihydroxyacetone by microbial fermentation, which comprises preparing an inoculum by growing *Acetobacter suboxydans* in a growth medium which contains glycerol and which has a *p*H of from 5.0 to 5.9, introducing the inoculum into a fermentation medium that contains corn steep liquor and more than 6 per cent by weight of glycerol, and permitting the fermentation to proceed until there has been substantial conversion of the glycerol to dihydroxyacetone.

U. S. Patent No. 2,948,657, "Skin Coloring Compositions," was issued to N. B. Siccama and W. B. Wirbelauer. It claims a skin coloring lotion comprising an aqueous solution of a substantially colorless leuco indigoid ester compound developing color upon exposure to actinic light and a water-soluble fixative compound selected from the group consisting of urea, thiourea, guanidine, a lower alkyl derivative of the urea fixative compound, a hydroxy lower alkyl derivative of the urea fixative compound, a lower amino acid, and a soluble salt of a lower amino acid, the composition having a *p*H in the range of about 7.5 to 8.5.

SWEETENING LIQUID PHARMACEUTICALS

(*Continued from page 326*)

Procedure: With mixing dissolve the methylparaben and benzoic acid in 800 ml. of boiling water. Dissolve the cyclamate sodium and saccharin sodium. Cool to 25° C. and add drug, dye, and flavors and bring to volume.

Artificial sweeteners are soluble in and compatible with alcohol. They may be used to good advantage to sweeten elixirs and tinctures. Desirable sweetness levels may be obtained without altering the viscosity typical of hydro-alcoholic preparations.

Following is a typical formula for an elixir:

Drug	q.s.
Ethyl alcohol, USP, 190 proof	200.0 gm.
Glycerine, USP	125.0 gm.
Cyclamate sodium, NF	10.0 gm.
Saccharin sodium, USP	0.1 gm.
Dye	q.s.
Flavor	q.s.
Distilled water	q.s. to 1.0 L.

Procedure: Dissolve cyclamate sodium, saccharin sodium, dye, and drug in glycerin and distilled water. Dissolve the flavor in alcohol and add. Bring to volume with water and alcohol.

Beverages and Wines

Dietetic beverages are well established and many new brands, flavors, and specialties sweetened with cyclamate are being marketed.

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TRADE LITERATURE

(*Continued from page 396*)

Granular Solids Mixing

A technical article describing design and performance criteria for vertical and horizontal mixers and blenders by C. H. Rathmell, chief product engineer, is available from Sprout-Waldron, Muncy, Penna. The paper, Reprint I-81, discusses the pros and cons of both types of mixers.

Aromatic Chemicals

Polak & Schwarz International N. V., Division of International Flavors and Fragrances Inc., has issued a price list for its aromatic chemicals, which is available from 521 West 57th St., New York City 19.

Filters and Pumps

Alsop Engineering Corporation, Route 10, Milldale, Conn., has issued a brochure describing its new line of filters, No. S-460, and another describing its Hy-Speed centrifugal pumps, HG-591. The equip-

(*Continued on page 418*)

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COMING EVENTS . . . . .

SEPTEMBER

15-16 Society of Cosmetic Chemists, seminar, Hotel Drake, Chicago, Ill. (S.C.C., E. 63rd Street, N. Y. C. 21)

15-18 Drug Chemical and Allied Trades Assn., annual meeting, Sagamore Hotel, Bolton Landing, N. Y. (Helen L. Booth, D.C.A.T., One Liberty Street, N. Y. C. 3)

18-21 Federal Wholesale Druggists' Assn., annual convention, The Greenbrier, White Sulphur Springs, West Virginia (Ray C. Schlotterer, F.W.D.A., 2 Lexington Ave., N. Y. C. 10)

18-21 Packaging Machinery Manufacturers' Institute, annual meeting (P.M.M.T., Room 863, 60 East 42nd Street, N. Y. C. 17)

20 Society of Pharmacists in Industry, fall meeting, New York Academy of Sciences, 2 East 63rd St., N. Y. C. (Vincent De Feo, Corres. Secretary, Dodge & Olcott, Inc., 180 Varick St., N. Y. C. 14)

20 Pratt Institute, Annual Package Design Workshop (and continuing for 15 consecutive Tuesday evenings), Pratt Institute Evening Art School, Brooklyn, N. Y. (Robert I. Goldbert, P.I. E.A.S., 221 Ryerson St., Brooklyn, N. Y.)

21 American Society of Perfumers, closed meeting (Dorothy A. Douglass, A.S.P., 630 Fifth Ave., N. Y. C. 20)

22-23 Packaging Institute, Production Line Committees, fall meeting, Biltmore Hotel, N. Y. C. (P.I., 342 Madison Ave., N. Y. C. 17)

25-27 Pharmaceutical Council of Greater New York, drug and cosmetic show, Trades Show Bldg., N. Y. C.

25-28 American Institute of Chemical Engineers, Mayo Hotel, Tulsa, Okla.

26-30 Instrument Society of America, annual meeting and instrument-automation conference and exhibit, New York Coliseum, N. Y. C.

28 Packaging Institute, Plastics Packaging Seminar, Statler-Hilton Hotel, N. Y. C. (Chas. A. Feld, P.I., 342 Madison Ave., N. Y. C. 17)

OCTOBER

1 Assn. of Clinical Pathologists, joint meeting with Assn. of Clinical Biochemists, Royal College of Surgeons, London, England.

3-6 Annual Instrument Symposium (and Research Equipment Exhibit, Oct. 4-7), National Institutes of Health, Bethesda, Md. (James B. Davis, Sec., N.I.H., Bethesda 14, Md.)

3-7 American Material Handling Society, meeting in conjunction with Canadian material handling show, Show Mart, Montreal, Que.

5-7 Pharmaceutical Manufacturers Assn., Biological Section, The Roosevelt, New Orleans, La. (Dr. Karl Bambach, P.M.A., 1411 K Street, N.W., Washington 5, D. C.)

6 Packaging Institute, meeting on shipping containers, Rodger Young Auditorium, Los Angeles, Calif. (P. I., 342 Madison Ave., N. Y. C. 17; or C. P. Bolton, Carnation Research Laboratories, 8015 Van Nuys Blvd., Van Nuys, Calif.)

7 National Vitamin Foundation, symposium, Jewish Hospital of St. Louis, St. Louis, Mo. (Wm. Rubin, N.V.F., 149 East 78th Street, N. Y. C. 21)

10-12 Assn. of Official Agricultural Chemists, annual meeting, Shoreham Hotel, Washington, D. C.

10-13 Technical Assn. of the Pulp and Paper Industry, corrugated containers conference, Royal York Hotel, Toronto, Canada

OCTOBER *(Continued)*

11 Society of Cosmetic Chemists, Chicago Chapter, Chicago, Ill.

13 Pharmaceutical Advertising Club, luncheon meeting, Hotel Roosevelt, N. Y. C. (D. Lindsay, P.A.C., Suite 608, 489 Fifth Ave, N. Y. C.)

14-20 National Wholesale Druggists' Assn., annual convention, Americana, Bal Harbour, Fla.

16-19 Pharmaceutical Manufacturers Assn., Financial Section, Boca Raton Hotel, Boca Raton, Fla. (Dr. Karl Bambach, P.M.A., 1411 K Street, Washington 5, D. C.)

16-19 Pharmaceutical Manufacturers Assn., Public Relations Section, The Greenbrier, White Sulphur Springs, West Virginia (Dr. Karl Bambach—see above.)

17-19 American Oil Chemists' Society, fall meeting, Hotel New Yorker, N. Y. C.

19 American Society of Perfumers, open meeting, Advertising Club, N. Y. C. (Dorothy A. Douglass, A.S.P., 630 Fifth Avenue, N. Y. C. 20)

19-21 Parenteral Drug Assn., annual convention, Statler Hilton Hotel, N. Y. C. (P.D.A., 1420 Snyder Avenue, Philadelphia 45, Penna.)

19-29 International Plastics Exhibition, "macroPlastic," Exhibition Halls, Utrecht, The Netherlands.

23-27 National Assn. of Retail Druggists, Municipal Auditorium, Denver, Colo.

25 Assn. of Consulting Chemists & Chemical Engineers, annual meeting and dinner, Hotel Shelburne, N. Y. C.

25-26 Pharmaceutical Manufacturers Assn., Pharmaceutical Contact Section, Washington Hotel, Washington, D. C. (Dr. Karl Bambach—see above.)

26-27 Pharmaceutical Manufacturers Assn., Production and Engineering Section, Seaview Country Club, Absecon, N. J. (Dr. Karl Bambach—see above.)

26-28 Annual Symposium on Antibiotics, sponsored by *Antibiotics and Chemotherapy, and Antibiotic Medicine*, Mayflower Hotel, Washington, D. C.

31 Packaging Institute, Inc., annual national packaging forum (through November 2) Statler Hilton Hotel, N. Y. C. (Chas. A. Feld, P.I., 342 Madison Ave., N. Y. C. 17)

31 American Management Assn., course in packaging (through November 4), Hotel Astor, N. Y. C. (A.M.A., 1515 Broadway, N. Y. C. 36)

NOVEMBER

2 Society of Cosmetic Chemists, New York Chapter, monthly meeting, Hotel New Yorker, N. Y. C. (Dr. Saul Bell, S.C.C., 2 East 63rd St., N. Y. C. 21)

3 Pharmaceutical Advertising Club, luncheon meeting, Hotel Roosevelt, N. Y. C. (D. Lindsay, P.A.C., Suite 608, 489 Fifth Ave., N. Y. C.)

8 Society of Cosmetic Chemists, Chicago Chapter, Chicago, Ill.

12-19 Pan-American Congress of Pharmacy and Biochemistry, Santiago, Chile

14 Salesmen's Assn. of the American Chemical Industry, annual sales clinic, Hotel Roosevelt, N. Y. C. (S.A.A.C., 60 East 42nd. St., N. Y. C. 17)

14-16 Pharmaceutical Manufacturers Assn., Research and Development Section, The Cloister, Sea Island, Ga. (Dr. Karl Bambach, P.M.A., 1411 K Street, Washington 5, D. C.)

16 American Society of Perfumers, open meeting, Advertising Club, N. Y. C. (Dorothy A. Douglass, 630 Fifth Ave., N. Y. C. 20)

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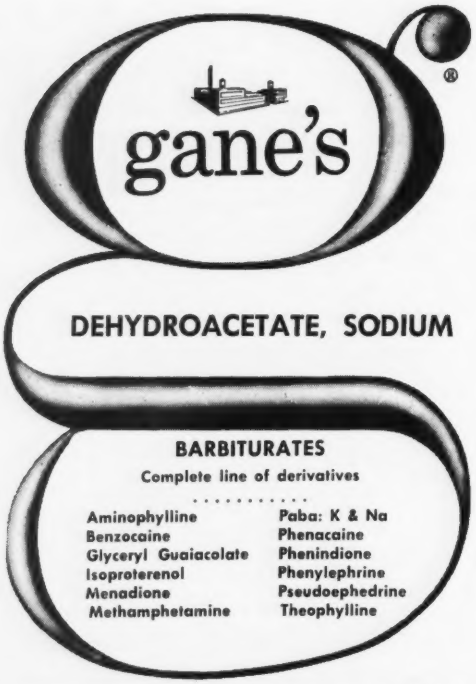

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NOVEMBER *(Continued)*

29 Society of Cosmetic Chemists, annual meeting, Hotel Biltmore, N. Y. C. (S.C.C., 2 East 63rd St., N. Y. C. 21)

30 Toilet Goods Assn., Scientific Section, Waldorf-Astoria Hotel (Kathryn Fitzpatrick, 1270 Avenue of the Americas, N. Y. C. 20)

DECEMBER

1-2 American Medical Assn., clinical meeting, Washington, D. C.

5-7 Pharmaceutical Manufacturers Assn., eastern regional meeting, Waldorf-Astoria Hotel, N. Y. C. (Dr. J. O'Neill Closs, 1411 K Street, N.W., Washington 5, D. C.

5-8 Chemical Specialties Manufacturers Assn., annual meeting, Hollywood Beach Hotel, Hollywood, Fla. (C.S.M.A., 50 East 41st St., N. Y. C. 17)

8 Pharmaceutical Advertising Club, luncheon meeting, Hotel Roosevelt, N. Y. C. (D. Lindsay, P.A.C., Suite 608, 489 Fifth Ave., N. Y. C.)

12-14 Pharmaceutical Manufacturers Assn., mid-year meeting, Waldorf-Astoria Hotel, N. Y. C. (Dr. J. O'Neill Closs—see above.)

27-30 American Assn. for the Advancement of Science, Pharmacy Section Meeting, Hotel Roosevelt, N. Y. C. (John E. Christian, Secretary, Pharmacy Section, School of Pharmacy, Purdue University, Lafayette, Ind.)

FEBRUARY 1961

8-10 Pharmaceutical Manufacturers Assn., Law Section, Boca Raton Club, Boca Raton, Fla. (Dr. Karl Bambach—see above.)

13-15 Pharmaceutical Manufacturers Assn., central regional meeting, Edgewater Beach Hotel, Chicago, Ill. (Dr. J. O'Neill Closs, P.M.A., 1411 K Street, Washington 5, D. C.)

20-21 Pharmaceutical Manufacturers Assn., western regional meeting, Ambassador Hotel, Los Angeles, Calif. (Dr. J. O'Neill Closs—see above.)

MARCH 1961

1-3 Pharmaceutical Manufacturers Assn., Medical Section, Ponte Verdra Club, Ponte Verdra, Fla. (Dr. Karl Bambach—see above.)

8-10 Pharmaceutical Manufacturers Assn., Medical Section, Ponte Vedra Club, Ponte Vedra Beach, Fla. (Dr. Karl Bambach—see above.)

21-30 American Chemical Society, spring meeting, St. Louis, Mo. (A. T. Winstead, A.C.S., 1155 Sixteenth St., N.W., Washington 6, D. C.)

20-31 Purdue Univ. Industrial Packaging Institute, industrial packaging short course, Purdue Univ., Lafayette, Ind. (Mark E. Ocker, Memorial Center, P.U., Lafayette, Ind.)

MAY 1961

2-9 International Packaging Exhibition, Amsterdam, Holland (Verpakkingsbeurn, Tesselschadestraat 5, Amsterdam, Holland)

9-11 Toilet Goods Assn., convention, and Scientific Section meeting (May 11), Waldorf-Astoria Hotel, N. Y. C. (Kathryn Fitzpatrick, T.G.A., 1270 Avenue of the Americas, N. Y. C. 20)

15-17 Chemical Specialties Manufacturers Assn., annual meeting, Mayflower Hotel, Washington, D. C. (C.S.M.A., 50 E. 41st St., N. Y. C. 17)

4-7 Annual National Industrial Pharmaceutical Research Conference, King's Gateway, Land O' Lakes, Wisconsin,

(Continued on page 418)

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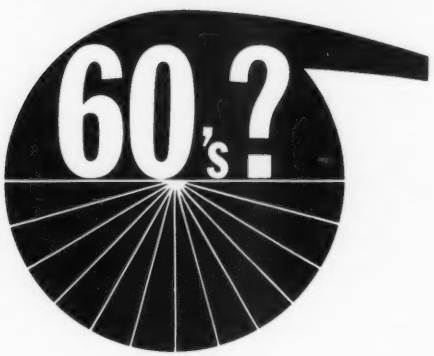

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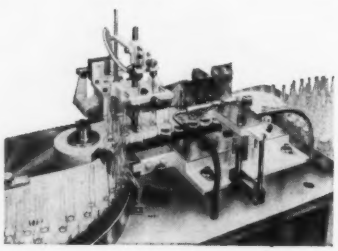

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Extension Services in Pharmacy, University of Wisconsin (Richard S. Strommen, E.S.P., 301 Chemistry Bldg., University of Wisconsin, Madison, Wisc.)

5-9 Society of Plastics Industry, National Plastics Exposition and annual national conference, Coliseum and Hotel Commodore, N. Y. C. (S.P.I., 250 Park Ave., N. Y. C. 17)

TRADE LITERATURE

(Continued from page 413)

ment is as much as 40 per cent lower in price than other models. The filters are available in pilot sizes, as well as large production models.

Citric Acid

The Miles Chemical Company has compiled a 30-page report on citric acid, U.S.P., complete with photographs, charts, and graphs. The brochure is available from Klau-Van Pietersom-Dunlap, Inc., Commerce Building, Milwaukee 3, Wisc.

Polymer Bases for Adhesives

A new 12-page brochure describing Bakelite vinyl ether polymer bases for pressure-sensitive adhesives has been issued by Union Carbide Plastics Company, Division of Union Carbide Corp., 270 Park Ave., New York City 17. Their properties, information on formulating and processing, and extrusion details are included in the Surface Coatings Technical Release No. 27.

Peroxygen Chemicals

Becco Bulletin List has been made available by the Becco Chemical Division, Food Machinery and Chemical Corp., Station B, Buffalo 7, N. Y. Descriptions of the firm's peroxygen chemicals and their uses in industry are included.

Surface Area Measurements

An instrument for rapid, accurate measurement of surface areas of solids and other adsorption phenomena is described in a brochure, Model 212 Sorptometer, available from the Instrument Division, Perkin-Elmer Corp., Norwalk, Conn. The Sorptometer, which is manufactured by Perkin-Elmer under exclusive license from Shell Development Co., Emeryville, Calif., is applicable in quality control and development areas in research study, cosmetics, pigments, adsorbents, and drugs. Its measurement are based on fundamental adsorption principles and can be directly correlated with previously acquired data. No special skills are required for its operation.

Water Demineralizer

A 36-page catalog describing the complete line of mixed-bed, two-bed, and four-bed demineralizers has been issued by Barnstead Still & Sterilizer Co., 119 Lanesville Terrace, Boston 31, Mass. One section includes ultra-pure water production.

Hooker Chemicals

Ninety-four organic and inorganic chemicals produced by the Hooker Chemical Corp., Box 344, Niagara Falls, N. Y., are reviewed concisely in a revised and enlarged, 16-page, quick-reference digest, Hooker Chemicals—Bulletin No. 100-D. Information on 88 commercially produced chemicals and six development products, as well as more than 20 new or recently developed chemicals, are included. A thumbnail description, physical data, chemical formula, uses, and types and weights of shipping containers are presented for all 94 chemicals.

Atarax Bibliography

A comprehensive bibliography of more than 300 reports on Atarax (hydroxyzine hydrochloride), including laboratory and clinical studies, is available from the Medical Department of J. B. Roerig and Co., 800 Second Ave., New York City 17. The 27-page document covers every known paper in the U. S. and foreign professional literature from 1955, when the tranquilizer-anti-spasmodic agent was introduced, to mid-1960.

Acetone

Hercules Powder Company, Wilmington 99, Delaware, has issued a 12-page, technical booklet describing the company's acetone. Its purity and its capacity to meet the physical and chemical requirements of rigid specifications are pointed out, along with the presentation of information on specifications, typical analysis, sales information, properties and chemistry, and a partial list of uses. The section on chemistry includes a few of the specific and general types of reactions which Hercules' acetone is capable of undergoing.

Abrac Bulletins

A. Boake, Roberts & Co. Ltd., London, E.15, England, has issued four technical information bulletins especially for the cosmetics industry: 204f, Abrac Emulsifying Agents for Cosmetic and Pharmaceutical Preparations; 227b, Abrac Acetoglycerides; 144c The Use of iso-Propyl Fatty Acid Esters in Cosmetics; and 157d, Abrac Metallic Stearates in Cosmetics.

Solids Processing and Heat Transfer Equipment

A brochure describing the solids processing and heat transfer equipment of the Patterson-Kelley Company, Inc., East Stroudsburg, Penna., has been issued by the company. Included are the following sections: pre-test information, lab solids blending equipment, solids processor, liquid-solids blenders, vacuum drying equipment, dimensions and capacities, solids-flow valve and other equipment, pilot plant equipment, and heat exchange equipment.

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Drum Mixing Equipment

A 12-page bulletin describing their complete line of drum mixing equipment has been published by the Process Equipment Division, U. S. Stoneware Co., Akron, Ohio. Bulletin DM-290 describes an expanded line of five standard sizes of heavy-duty fiber drum tumblers with new features including quick-release drum holders, floor-level loading, and built-in drum extenders. Charts are given showing loading sizes of drum tumblers required for specific weights of loads to be tumbled. Other special mixing units are described. Photographs and diagrams are included.

Silicones

The Silicone Products Department, General Electric Company, Waterford, New York, has issued product data on its silicone fluid, which meets the Federal Food, Drug, and Cosmetic Act requirements for use as a component of antifoam agents contributing no more than 10 ppm. of the fluid to food, other than milk and articles intended for the feeding of infants and invalids. The SF 18 (350) silicone fluid may also be used in cosmetic and pharmaceutical applications, and specific references to other useful G.E. bulletins for this purpose are provided. Applications, typical properties, suggestions for handling—including formulation and use, and ordering instructions are presented.

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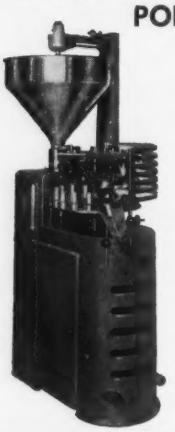

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A revised price sheet on the silicone fluids also available reflects the recent decrease in cost of many G-E silicone fluid and emulsion products.

Export Credit Insurance

The Proprietary Association, 810, Eighteenth St., N.W., Washington 6, D. C., has made available a pamphlet entitled The Package Plan, which is a concise outline of comprehensive export credit insurance. The publication is put out by the Continental Casualty Company of Chicago, and describes the main features of the policies offered by them through Intercredit Agency, Inc., the company's underwriting manager for export credit insurance.

On Research and its Rewards

Breakthrough: Reward of Research, a 28-page booklet which traces the development of the corticosteroids, is available from Schering Corporation, Public Relations Department, 60 Orange St., Bloomfield, N. J. It covers the development from the initial administration of cortisone in 1948 through the development by Schering of prednisone and prednisolone, six years later.

Commercial Standards

A new List of Commercial Standards, revised to July 1, 1960, is available from the Office of Technical Standards, U. S. Department of Commerce.

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Plastic Welding Kit

A two-page data sheet describing its new plastic welding kit designed for field or in-plant maintenance or production welding of any thermoplastic fabrication, is available from the American Agile Corp., P.O. Box 168, Bedford, Ohio. The Sheet also includes a complete listing of sizes and prices for sheet Polyvinyl Chloride (Type I & II), branch and linear polyethylene, and polypropylene.

Endless-Belt Vacuum Filter

Komline-Sanderson Engineering Corp., Peapack, N. J., has published a four-page, two-color brochure, No. KSI-4, describing its new Flexibelt filter, a continuous vacuum drum filter designed to allow take-off, wash, and return of an endless filter cloth, and to overcome or minimize the limitations normally encountered in rotary vacuum filtration.

Spray Drying

A four-page bulletin describing its research, engineering, testing, and custom-drying facilities for spray drying is available from Nerco-Niro Spray Dryer Division of Nichols Engineering and Research Corporation, 80 Pine St., N. Y. 5, N. Y. Illustrated are four different sized spray dryers in operation, as well as the analytical laboratory for analysis and evaluation of raw materials and finished products. Bulletin is No. 239.

Porous Teflon and Kel-F Filter Medium

Available from the Porous Plastic Filter Company, Inc., 30 Sea Cliff Ave., Glen Cove, N. Y., is a four-page bulletin, P-103, which describes porous Teflon and Porous Kel-F. It lists standard forms, such as discs and sheets, which are fabricated from these chemically inert filter media, and gives complete specifications and prices.

X-Ray Literature

A 20-page list of references from 1930 to 1960, giving authors and publication names, article titles, and publication dates for 376 papers on X-ray analysis, is available from Philips Electronic Instruments, 750 South Fulton Ave., Mount Vernon, N. Y. Some of the listings are of interest to those in the chemical and pharmaceutical industries.

(*Continued from page 319*)

potassium loss, although by different mechanisms. A combination of the two drugs causes a potassium loss greater than the effect of each separately. And, occasionally, a material not ordinarily toxic, such as an alkali citrate used in blood transfusion to prevent coagulation, can convert calcium in the myocardium into the nonionic, hence nonionizable, form.

Resistance and Mutation

The emergence of strains of organisms resistant to antibiotics, as when insects are resistant to insecticides, is imputed to the development of mutant variants that are not sensitive to those drugs or poisons. Mutation does take place and the new strains may indeed be resistant to certain drugs. However, it is not wise to ascribe summarily the phenomenon of resistance to mutation; one should remember Darwin's findings. Upon the use of a drug to kill a pathogenic organism or a parasitic insect, a large proportion succumb. But a small proportion, which are presumably resistant to the drug, are not killed. When the survivors mate, they simply produce progeny that have a genetically built-in resistance. Mutation takes place only after many generations. For microorganisms this may take place in days or weeks—for insects in months or several years; for humans it may take centuries, unless a powerful mutational stimulus like radiation comes into play.

Dosage

In the attempt to reduce side effects or extension effects, derivatives active in a dose smaller than that of the parent or earlier compound are sometimes synthesized. But a smaller dose has no substantive significance; it gains significance only if the side effects or extension effects are also lessened, while the principal effect persists. Moreover, the frequency at which the new derivative is administered, the duration of its effect, and the need for collateral measures as well as other factors must be taken into consideration in judging whether the newer derivative actually has substantive advantages aside from that of a smaller dose. •

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